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Gleanings in Bee Culture

VOL. XXXIX

SEPTEMBER 1, 1911

NO. 17

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DR. C. C. MILLER

Author of

"Fifty Years Among the Bees"

Order From DES MOINES

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The A. I. Root Co., Des Moines, Iowa

Iowa Phone 968

Formerly Jos. Nysewander, Bee-Supplies

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VOL. XXXIX

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Editorial

DON'T wait too long for better prices or you may get left. Now is the time to sell.

WHY SINGLE-TIER SHIPPING-CASES ARE BETTER THAN DOUBLE TIER; TWO VERSUS THREE INCH GLASS.

MR. R. B. SLEASH, of Roswell, New Mexico, a bee-keeper who has had some twenty years' experience in shipping honey, votes in favor of the 24-lb. single-tier shipping-case with two-inch glass. He says the trouble with the double-tier case is that it is too nearly square; that express men are "just as liable to chuck it down on its side as any other way." "The single-tier case," he goes on to say, "will always go flat or on one end." He does not favor three-inch glass, because that width weakens the case too much.

R. L. Taylor, in a letter just received, writes:

There may be honey that looks better behind a three-inch glass, but I have never seen it. It's my opinion that a two-inch glass is better every way.

Lapeer, Mich., Aug. 10.

R. L. TAYLOR.

Our older readers will recognize Mr. Taylor as one of the officers of the National Beekeepers' Association, an old-time contributor to *The Bee-keepers' Review*, an occasional contributor to *GLEANINGS*, and one of the prominent bee-keepers of Michigan. This question of the proper width of shipping-case glass is an important one. Dr. Miller favors a three-inch glass because he thinks it shows off the honey to better advantage. While this is probably so, the added width weakens the case rather more than the difference in proportion to the two widths would indicate. See what Mr. Foster, in his department in this issue, page 517, says on the subject.

NOT GUILTY AS CHARGED.

THERE has been some little discussion going on in Connecticut concerning the question whether bees puncture sound fruit. One correspondent in *The Connecticut Farmer*, who takes issue with the statements made in our A B C and X Y Z of Bee Culture, that bees do not puncture sound fruit, says the perforations of plums, which he alleges

the bees made, "were quite too small and delicate to have been made the by tiniest beak of bird." In this he shows his woeful ignorance. The facts are, there are several birds that make very small perforations. One of them in particular, the Cape May warbler (*Dendroica tigrina*), makes an incision no larger than would be made by a common darning-needle. Some of the holes are no larger than would be made by a common pin. We have caught Cape May warblers in the very act of making perforations on grapes, and immediately examined the fruit after the bird had flown, and before any bees were on the job. Of course, the bees later on, if it be during a dearth of honey, visit the damaged fruit and suck the juices out until it shrivels up into a withered mass.

It has been proven over and over again that bees will not puncture sound fruit, although they will help, many times, to despoil fruit already damaged that would rot unless used at once.

HONEY-CROP CONDITIONS: A CAUTION CONCERNING THE RECENT ADVANCE IN PRICES.

It is becoming more and more apparent that the honey season east of the Mississippi River and north of the Ohio has been more nearly a complete failure than for many years back. While there are beekeepers here and there who have been favored with exceptionally good crops, the great mass of producers throughout the northeastern portion of the country have secured no surplus; and those more favored have hardly enough to carry their colonies into winter quarters without feeding. Clover and basswood honey will be scarce this year—particularly in the comb.

The conditions west of the Mississippi have been much more favorable. It would appear from our Rocky Mountain department, this issue, edited by Mr. Foster, that for his section of the great West there will be a fair crop of alfalfa. Some of the other alfalfa States will have from a light to a fair crop. California, from the latest reports, taking the State as a whole, has had a good crop. Some beekeepers in the southern portions of the State, however, will have a

much lighter yield than they expected. Consumers in the East will have to take Western honey. It is just as good, but the flavor is different.

Western honey, owing to the lightness of the Eastern crop, has advanced from half a cent to a cent and a half over last year's prices. Producers, however, should not make the fatal mistake of making too radical or too rapid an advance, as dealers will refuse to pay the figure, and buy other commodities involving less risk. This statement is not based on theory, for we can furnish the names of a number of large buyers who will not pay the prices now asked. If these men drop out permanently it will have a bad effect on the market. The more active buyers we can have in the field, the better for the trade. It will not do to advance further, as we are fearful that it will queer the market, with the result that prices will take a slump when the buying season is over. Let us hold the present prices if we can; but let us not go higher.

"FIFTY YEARS AMONG THE BEES."

NOT many in our ranks have been keeping bees continuously for half a century. There are many who are alive to-day who kept bees fifty years ago, but they have dropped out of our ranks, or at least we do not hear from them any more. If there is one man in all the United States who can be properly classed as the Nestor of American bee-keeping—a man who has earned his bread and butter from what he knows about bees for a period of nearly fifty years, it is the genial editor of *Stray Straws*, the man who has the reputation of having a smile that won't come off. For fifty years Dr. Miller has been playing and working with his bees. Playing? Yes, the sage of Marenngo, 80 years young, has all these years been making his work a play. It is quite remarkable that one of that age should be so full of enthusiasm; and more remarkable still that his hobby of fifty years ago is his hobby to-day—one that has been a money-maker.

It is rare indeed that one can sell his crop of fruit or honey before it has been produced. But Dr. Miller is one of those men who have been able to produce such a fancy article of comb honey that he has been able to sell it, not only by the carload, but before the honey-flow had actually begun. The man who knows *how* to play, and make his play *pay* in dollars and cents, like this, ought to be able to tell others how to do it. If there is any one in all our ranks who knows how to tell what he knows, it is the author of *Stray Straws* and "Fifty Years Among the Bees."

It is needless to say that Dr. Miller's style is conversational, attractive, and easy. He takes the reader into his confidence, and talks to him just as if he were in his actual presence. He uses no "highfalutin'" expressions, but writes in the plainest and clearest English. He talks familiarly of the members of his own family; and after

you have read the whole book you feel as if you had been spending a delightful summer outing with the sage of American apiculture.

The new edition of "Fifty Years Among the Bees" is not only thoroughly revised but considerably enlarged. It is printed on a high quality of enameled book paper, thus bringing out the original photographs of the author, so that they stand out clear and distinct. The price of the book is \$1.00, post-paid.

A NEW OLD SCHEME FOR OUTDOOR FEEDING; HOW BEES HAVE THE POWER TO EJECT THE EXCESS OF WATER FROM THIN SYRUP WHILE ON THE WING.

A FEW days ago we received a letter from Mr. J. E. Hand, the inventor of the Hand bottom-board, one of our regular contributors, and a prominent queen-breeder of Northern Ohio. As his letter presents a rather new idea in outdoor feeding we are glad to place it before our readers:

Mr. Editor:—In a recent number of *GLEANINGS* you quote Mr. Pritchard as saying that scientific feeding is preferable to an ordinary honey-flow for queen-rearing, but leave us in the dark as to what constitutes "scientific feeding." With the hope of gaining further information from Mr. Pritchard upon the subject I will outline a system of open-air feeding that, while it may not be exactly scientific, approaches very closely to the conditions that exist during a natural honey-flow, with the advantage that it is under the control of the apiarist.

While we can scarcely hope to improve upon nature's methods, we can imitate them so closely as to enable us to rear queens during a dearth of nectar that are every whit as good as those reared under the swarming impulse in the midst of a natural honey-flow. There has been no nectar to be gathered in our location since the first of July, and no prospect of any change for the better during the remainder of the season. About Aug. 1 many of our nuclei had become almost destitute of stores, and the feeding problem began to loom up before us with alarming proportions. The situation was rendered more aggravating by the fact that the bees had become so ravenous that it was a difficult matter to cage queens or manipulate frames without creating an uproar among them. Finally it became evident that something had to be done quickly; so we arranged ten of our old-style feeders in a line close together upon benches, and filled them with syrup, half sugar and half water. This gave us a feeding surface of about 15 square feet and 2 inches deep, the pans being provided with slats standing on edge $\frac{3}{4}$ inch apart, so the bees could get the feed without any danger of drowning.

Now for the results: We soon found that the feed was too rich, as it caused too much excitement among the bees, and they gathered it up too rapidly. After some experimenting we found the conditions that prevail during an ordinary honey-flow. There was no excitement about the feeder nor in the apiary—only that quiet and contented hum that gladdens the heart of the bee-keeper, and tells him that his troubles are at an end so far as robbing and starvation are concerned. Nor were we disappointed in this respect, for the next day after starting the open-air feeder we caged queens and manipulated frames exactly as though we were in the midst of a natural honey-flow, with no signs of robbers anywhere.

The conditions that approached more nearly to those existing during a natural honey-flow were found when feeding a ten-per-cent solution—that is, nine parts water to one part of sugar. We have about 400 nuclei and 75 full colonies in the yard, and the feeder above described affords ample room for stimulative feeding when feed of the proper consistency is used. The amount of food taken by the bees is regulated by making it richer or poorer as required, and is under the control of the bee-keeper. When feeding for winter stores the feed should be considerably richer than for stimulative feeding to produce an artificial honey-flow. Half and half

sugar and water fed in the open air during August and the fore part of September will place the bees in excellent condition for winter.

Since adopting this system of open-air feeding we get better queen-cells: the bees are stimulated to greater activity, and the queens mate two or three days earlier. Breeding is going on at a rapid rate, and our hives will be filled with young bees to go into winter, which, in connection with well-ripened stores of sugar syrup, is about the best kind of life insurance for bees. In order to practice open-air feeding profitably, one should be isolated a reasonable distance from neighboring bees. Every queen-breeder is supposed to be so situated.

An ideal open-air feeder would be a pan 6 feet long by 3 feet wide, and 4 in. deep, provided with a frame-work of slats standing on edge $\frac{3}{4}$ inch apart, with a thirty-gallon tank to supply the feed through a half-inch pipe having a faucet to regulate the flow. If located convenient to the water supply, the tank could be filled in a few minutes each day, and would not require further attention. I do not advocate the feeding of thin sweetened water for spring stimulative feeding, as it exhausts the vitality of the old bees that have come through the winter, and causes them to drop off rapidly. I have about come to the conclusion that in the fall is the right time to practice stimulative feeding.

J. E. HAND.

A few days after this we drove down to Mr. Hand's place, some 35 miles away. After talking with him about his switch-lever bottom-board we went out to the bee-yard, where we found this new scheme of feeding in operation.

"There," said Mr. Hand, pointing with some pride to a lot of outdoor feeders, "I believe I have solved one of the problems that confront every queen-breeder during a dearth of honey. I have here what corresponds to a natural light honey-flow. All my hives are in splendid condition. Bees are rearing brood, and the cell-building colonies are at work constructing cells."

"But," we said, "haven't you found that this outdoor feeding wears out your bees unnecessarily?"

"Not if the feed is made *thin* enough. Notice that there is no excitement, no crowding, and no bees with the fuzz worn off their bodies when the feed is richer. See here."

So saying he picked up a common galvanized pail, poured in about ten quarts of water, then a quart of sugar. With a common dipper he stirred the mixture until it was all dissolved. He next poured this over the feeders and *on the bees*. Some of the bees, during the pouring, were pushed into the syrup, or what was in reality nothing more than sap or sweetened water. They would climb up the sides of the feeder, and take wing as if nothing had happened. We then tasted the sweetened water, and remarked, "Mr. Hand, we can scarcely taste any sugar at all."

"That is true," he said; "but it is strong enough to keep every thing booming here."

"But," we interposed, "think of the quantity of water that the bees have to evaporate out of that kind of sap."

"Say, Mr. Root, just follow me."

We walked back some fifty feet, and, turned about, faced the feeders. We were then looking toward the sun and the dark background of the trees.

"Now," said Mr. Hand, pointing, "you watch those bees as they fly out, and you

will find them shooting tiny squirts of water when they are ten or twenty feet away from the feeders in the air."

Sure enough, tiny streams of water were being shot out from each individual bee. Some squirts seemed to be eighteen inches long. Then we recalled what A. I. Root had written in the old A B C book, under the head of "Water." You will remember how he told about bees on the wing ejecting water on large dinner-plates he had set out to catch the spray.

We raised the question whether the bees did not discharge a large portion of the water in the nectar on the wing before entering the hives.*

Our host thought that bees do not have to evaporate *all* the excess of water from the nectar that they bring into the hives. While admitting that *some* of the water is removed by the fanners at the entrance, he contended that this sugar-and-water mixture was not so wasteful of bee-life as we might suppose, because the bees will discharge water from thin syrup in precisely the same way that they discharge water from their nectar. "Then why not," he argued, "follow nature in this matter of feeding?"

A short time ago we received a letter from Dr. Miller, who, while indorsing our slow method of feeding in the hive through one or two small holes in a pepper-box feeder, suggested we would find it much to our advantage to make a one-to-three syrup instead of a one-to-one syrup.

While outdoor feeding is an old idea, the scheme of using sweetened water (ten of water to one of syrup) is a rather new one. It is going back to a weak nectar. If the bees have a delicate apparatus in their bodies by which they can separate the excess of water from the sugar while on the wing, and before they get to the hive, is it not possible that, when they are fed in the hive with a thin syrup, they rush out of the hive to discharge the excess of water rather than to find where the syrup comes from. We are asking for information, for we don't know. Of course, other bees in the air are attracted by these wild commotions, and they immediately start on the hunt, prying around the entrances.

This is a very interesting field to exploit—the more so since one of our queen-breeders, Mr. Mell Pritchard, who has just passed his 10,000-queen mark, says he thinks this scheme of outdoor feeding of sweetened water is one of the biggest things that have been presented to the queen-breeder, and possibly honey-producer who has a lot of weak colonies that need stimulating and feeding in order to get them in proper condition for winter. Later we will answer Mr. Hand's question on what he meant by "scientific queen-rearing."

*In later years A. I. Root, with the members of his family, while watching bees take copious drinks of nectar from the spider-plant, repeatedly saw them load up with nectar, and, as they left the blossoms, discharge the excess of water in the form of a tiny squirt of pure water. The writer distinctly remembers this as though it were yesterday.

Stray Straws

DR. C. C. MILLER, Marengo, Ill.

J. E. CRANE, p. 485, if my bees ever tore down one side of worker-comb and rebuilt drone-cells I never noticed it.

WESLEY FOSTER, however it may be in Colorado, here we have whole combs of brood sealed, not a cell missing. If, as you say, p. 452, only $\frac{3}{4}$ of the eggs laid come to maturity, there ought to be unsealed cells mixed in. Wish the Washington savants would tell us about it.

THREE WEEKS after swarming, Lizzie J. McCalmont found in the mother colony a queen but no eggs, page 473. Was not the only trouble that the queen had not yet begun to lay? The virgin emerges about a week after the swarming, and lays when eight or ten days old, say sixteen days after the swarm issues. In this case it might easily be five days later, either because the swarm issued before the sealing of the first cell, or because of delay in fecundation.

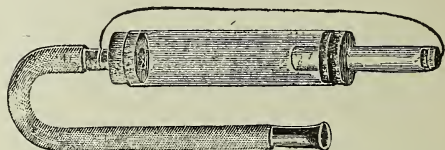
TO PROTECT passers-by from an apiary within 25 feet of the street, a fence of poultry netting 40 inches high was erected. The netting had a two-inch mesh, but the bees all flew over it, not one going through, although one colony was only 12 inches from the fence.—*Schweiz. Bztg.*, 229. [We have not tried this, but we believe it is true. In the same way, bees do not like to fly through tall grass and weeds to get to their entrances; and yet we bee-keepers are careless enough to force them to wear out their wings prematurely.—ED.]

THE QUEEN of No. 64 was caged and the cage stuck in the entrance of the hive. Nine days later an egg was found in a queen-cell. Colony very dark. Did a worker lay that egg or carry it from the cage? [We have had a couple of cases where queens laid eggs in a queen-cage and the bees deposited them in queen-cells, or queen-cups, and raised queens. Dr. L. A. Simmon, of Auburn-dale, Fla., will shortly tell of a very remarkable case that came under his observation. He showed us the cage of queen-cells and the queen.—ED.]

HERE'S my latest feeder for a small quantity at dusk in hot weather: A tumbler of syrup at the entrance, with cork-chips for a float. If the evening be cool, kick the hive and then run. [This scheme will work; but a beginner ought to be cautioned not to place too much food before a weak nucleus, for they might not be able to take it all out before morning. Your advice to "kick the hive and run" had better be practiced by all beginners when putting food out this way in front of an entrance, otherwise the bees might not discover it.—ED.]

THE EDITOR of *Australian Bee Bulletin* says bees can not transfer eggs, for even he himself has tried it and failed. [This statement is surprising. The fact that our friend failed to move eggs and have them hatch is

by no means proof that the bees can not do it. Bees can do a thousand and one things that we can not do, and there are a few things they do that we can do, and one of them is moving eggs. If our friend, the editor of the *Australian Bee Bulletin*, will spend a summer in a large queen-rearing yard he would probably change his mind. See answer to Straw in this issue regarding the queen of No. 64.—ED.]



AUFSAUGEFANGKAEFIG (suck-up-catch cage) is the name of a new contrivance for catching a queen without touching her with the fingers. The cut from *Ill. Monatsblätter*, 59, needs little explanation. Place the end of the little glass cylinder, give a quick suck, and the queen will be in the cylinder, when you will put in the plug. Of course there is no chance for the queen to pass into the rubber tube.

I HAD A CHANCE to try carbolic acid for robbers. A fierce attack was made upon No. 109. I dipped the tail-feather of a turkey in a bottle of carbolic acid and drew it once across the front of the hive just above the entrance, then dipped it again and drew it just once across the alighting-board. A solid phalanx continued to fly at the entrance, but not a robber passed through that two-inch space perfumed above and below. The effect continued for fifteen minutes, and every fifteen minutes for the rest of the day I painted the entrance afresh. In the morning the robbers were at it again. I carried the hive into the cellar, and put in its place an empty hive of like appearance. Next day I returned No. 109, closing the entrance to one square inch. There was no further trouble. [We have tried experiments somewhat similar, but the acid seemed to confuse the inmates of the hive as well as the robbers. We did not, however, apply it in just the way you describe, around the entrance. As we now recall, we sprayed a weak solution over the entire entrance, robbers and defenders alike. We will try it again at the next opportunity, and perhaps the results will be more favorable, providing we make a "dead-line," so to speak, an inch or so from the actual opening of the entrance itself. Robbers would have to pass the "dead-line" necessarily, while the defenders of the home would not, and would, therefore, have the advantage. You do not say whether the carbolic acid you used was full strength or diluted; but we infer full strength. Please enlighten us if we are mistaken.—ED.]

Bee-keeping Among the Rockies

WESLEY FOSTER, Boulder, Colo.

THE HONEY CROP.

The crop of white honey has been good in places. The lower Platte Valley in Colorado has had a good return, as has also the Arkansas Valley. The Arkansas Valley west of Pueblo, a district where bees have never gained much surplus, seems to be improving, and the crop this year will be of some importance. Northern Colorado, having lost from 25 to 75 per cent of its bees, will not have a crop of any shipping importance, though the bees have done well where water was abundant and grasshoppers and frost not too severe on the alfalfa.

The western-slope crop will be fair—good in places and poor in others. This part of the State will probably ship more honey than the eastern section. Taking it all together the crop will be larger than for two or three years.

THE RELATION OF THE BEE-KEEPER TO THE FOUL-BROOD INSPECTOR.

It may not be out of the way to remark that the bee-keeper who knows foul brood and its treatment, but who waits for the inspector to look at his bees, should be apprised of the "cost of something for nothing" in this case. The bee-keeper is the greatest loser, his neighboring bee-keepers coming next. It is gratifying to know there are not many such, though there is a certain type of individual who has a wrong idea of his personal responsibility for his own bees and the duties of the inspector. If all the bees were kept by a specialist there would be small need of inspection; but as this is a land of equality of opportunity for all, even to the extent of having the right to blunder, I suppose we shall have foul brood with us continuously. And then the ranks of veteran bee-keepers have to be recruited from among the host of beginners, so we should not feel too badly toward the uninformed individual.

THE NEW COLORADO INSPECTION LAW AND THE OLD ONE.

Some new developments have taken place, and have been heard of since writing last. Governor Shafroth vetoed \$3000 of the \$5000 appropriated for the biennial period, which leaves \$2000 to do the work until November 30, 1912. The county inspection law is not repealed except where it conflicts with the State inspection law. The inspector for the State is the writer, who will act under the direction of Prof. Gillette, State Entomologist. It is desired to coöperate with the county inspectors, and aid them in every way possible. It will not be possible to take up work in counties where the county will not support its own inspector. The funds for this work will not permit. I should like to hear from bee-keepers in Colorado where inspection is needed, so that

arrangements can be made to coöperate with the county inspectors, and all interested bee-keepers for the thorough prosecution of the work.

Dr. Phillips, of the Bureau of Entomology, will be with us in September; and if your county would like to arrange a meeting of the bee-keepers and county inspectors, Dr. Phillips, Prof. Gillette, and myself will probably be able to attend if we can arrange dates.

THE CASE OF THE DOUBLE-TIER CASE.

Dr. Miller has been about the only champion of the double-tier case east of Colorado who has spoken his views in the bee-journals; and now to think that the reasons he has for preferring the case are not *my* reasons! He likes the double-tier case because of the greater amount of honey shown, and asks for the three-inch glass. I like the 2½-inch glass far better than the three-inch; and the two-inch glass is wide enough for any market conditions. A double-tier case with three-inch glass can not have the front strips more than one inch wide, and that is *not* strong enough, Dr. Miller to the contrary notwithstanding. He must remember that his Straws are blown by the wind further than Marengo or Chicago or Illinois. One can not expect a freight-handler or express-driver to know the exact amount of jar which a case of comb honey will stand. I will conflict with the editor when I say the object of the glass is not for the benefit of the handlers, but to display the honey to the customer. There is not one freight-handler in five but would drop a case just as far whether he knew the contents or not, unless he was warned by a caution-mark. The bulk of the comb-honey product is shipped in carrier-crates, where the glass is not exposed, and in car lots where the loading is done by men familiar with the goods, and is unloaded under the buyer's supervision. Comb honey does not ship any more safely, if as safely, in glass-front cases with glass exposed as where crated, or the glass protected and so covered up. If the glass is exposed, a foot is more likely to be put through the glass accidentally, or the corner of a box crushed through the glass. A large percentage of the cases where the glass is exposed will be turned glass side up by careful but inexperienced (with honey) express and freight men.

I would vote for a half-inch-thick cover and bottom before I would vote for three-inch glass. Two-inch glass will admit of wide and strong strips, and 2½-inch glass is as wide as should be used. I would prefer the appearance of a two-inch glass, double-tier case, to one of three inches. I have seen the two-inch glass and the 2½-inch glass in double-tier cases, but I have never seen the three-inch. Have you, Dr. Miller?

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NOTES FROM CANADA

J. L. BYER, Mt. Joy, Ont.

Dr. Phillips, in speaking of the two kinds of foul brood, says, on page 407, July 1, "There is usually little odor in European foul brood." I hardly think that will apply to the Ontario brand, as some of the worst-smelling cases I ever came across have been of the European foul-brood variety. A few weeks ago I was called to look at a case of this disease, and the combs could be smelled ten feet away on the windward side of the hive. The colony had been an extremely strong one, and had evidently got the disease by robbing, or finding a vessel that had contained honey, as practically all the brood was dead. Probably the large amount of dead brood was responsible for the rank odor; but whatever the cause, the smell was certainly disgusting.



EXTRACTING THE LIGHT BEFORE THE DARK HONEY COMES IN.

Editor Hurley says, in the July *Canadian Bee Journal*, "at the close of the basswood flow or other light-honey-producing plants, start the extractor going promptly if you are living in a locality which gives you a buckwheat flow. There is no excuse for letting the two become mixed." Begging your pardon, friend Hurley, this scribbler would beg to differ with you, and say that often there is a really good excuse for allowing the two to become mixed; and I want to say right here that in many seasons, in quite a few localities, the anxiety to keep the two separate results in a lot of green honey going on the market. By all means keep the two separate when possible; but rather have a mixed *ripened* honey than green pure basswood or thistle honey *unripe*. We have been there, and have been under temptation, too, and that at no later a date than the season of 1910. Basswood gave a light flow, and thistles yielded the best I ever knew. Just as they were about over, some fields of buckwheat began to bloom. The honey was unsealed and thin; but my! how we were tempted to get off an extra thousand of white honey, especially after the season had been none too good! In fact, we yielded to temptation and took off a few hundred, and then were ashamed of the quality we had. I may as well confess that I was afraid to dispose of the 200 odd pounds taken off, and later on I fed it back to a strong colony and had a lot of sections finished with it.



1911 A YEAR OF FAILURE.

This is Aug. 12, and still the weather is *dry—very dry*. The season of 1911 will go on record as a series of disappointments for the bee-keepers of our vicinity; for now it looks as though the buckwheat would not yield more than enough for winter stores, if it does that much. First of all, the clover

was badly damaged in the early spring; then warm rains freshened up what was left, and the farmers left many acres for seed that should have been plowed under. The extreme drouth and heat of May seemed to take all the vitality out of the alsike, and, as a result, it yielded practically no honey, and, as thrashing proved later on, practically no seed. From one to two bushels to the acre is the average, whereas seven and eight is not an unusual yield other years. Twenty miles west of us, where the clover wintered well, I am informed that the yield of seed is proving to be good. The extreme heat of July, coupled with the great drouth, made it look for a while as though we should have little if any buckwheat; but some heavy showers for a few days in succession soaked the ground so that quite an acreage went in. Our hopes again soared up with visions of a crop of buckwheat honey, and the feeding bill cut out—a nice prospect, you know, after a failure in the white-honey crop. Now it is so dry that many acres of buckwheat are in bloom while the plants are not over a few inches high. There is still hope if we get rain inside of a few days; but at present the weather looks far from showery.



CLOVER KILLED; MOVING TO PASTURES NEW.

As mentioned in a former issue, the clover sown this spring is reported to be about all killed, and the problem now is what to look ahead to for another year. With this thought in view, we have already picked out a location about 100 miles from home; and if all goes well, two or three hundred colonies will be shipped there next spring. It is the old story of taking the mountain to Mahomet, if Mahomet will not come to the mountain; and, under the circumstances, I know of nothing better to do; for with no clover in our locality, nothing short of a miracle would give a crop of honey. True, basswood did give a good surplus crop *ten* years ago, so perhaps we have a *chance* of getting a crop from that source.

The conditions I have described will also apply to a great many other localities in Ontario this year, judging from letters I have received from different parts, and it looks as though the man who depends more upon *wild* feed for his bees than on cultivated plants as a source of nectar will be better situated for a year or two until things are normal again. The location I have mentioned, and which was visited a few days ago, is one of the kind that does not depend on cultivated plants for nectar. Aside from the alsike and white clover that are in the meadows, thousands of acres of raspberry, willow-herb, goldenrod, and an abundance of basswood constitute the main source of supply.

Conversations with Doolittle

At Borodino, New York

AGE OF BEES; A SINGULAR FACT IN REGARD TO DRONES.

"An old bee-keeper told me that many bees live to be a year old. Is this a fact?"

"The worker-bee rarely lives longer than 45 days during June, July, August, and September; while those emerging from their cells in September may live until the next May or June, if not injured by our winters, their life being prolonged above the 45 days in proportion to the work that they do or the hardships they are required to undergo. I have never known a worker-bee to survive a single year. Nothing in the bee-business has given me more pleasure than experimenting to ascertain the different ages of bees and the different offices they perform at certain ages when in normal condition. When these conditions are not complied with, the colony is thrown out of balance, and the bees perform any office of the hive feebly until they can adjust matters. Then it is that very young bees go into the fields when they will bring less than one-half the load that the bees over 16 days old will carry. Old bees will rear queens which are not of half the value of those reared when there are plenty of nurse bees, as is the case when a colony is in a normal condition; and some workers will even lay eggs."

"When worker-bees lay eggs, what kind of bees come from them?"

"Nothing but drones. As these worker-bees are not what we call fertile, nothing but drones can come from their eggs, any more than from an unfertile queen. Now, while queens reared by old bees will become fertile and lay for a time, their life is short. In these experiments I have found that queens reared under the most favorable circumstances attain the age of three, four, and often five years, even under the great stimulus which is brought to bear on them under our modern bee-keeping, where a queen is often coaxed to lay more eggs each year than did the queens of our fathers. Many queens at the present time lay from 3000 to 4000 eggs daily; while in the day of the box hive, if a queen laid from 2000 to 2500 eggs daily she was doing remarkably well. On one occasion I had a queen that lived and did good work until she was nearly six years old, and many of my queens have done good service until nearly or quite five years old. On the contrary, I have reared queens early in the spring or late in the fall, and, with one or two experiments during midsummer, with all old bees, which did not live more than six months or a year; while during their life-time they never kept more than from four to six Langstroth frames full of brood with all the coaxing I could do. As a rule, neither all old bees nor all very young bees rear queens unless some accident happens to force them to do so. It is not a good plan to adopt the accident pol-

icy if one wishes to rear queens which will tend to produce better bees than those we already have.

"The worker bee is in the egg form three days; in the larval form, five or six days, and in the pupa form twelve days. After emerging it takes the bee from a half to a full day to get fully straightened up, soon after which it begins preparing chyle for the larvæ of the hive, doing this work very largely until it is from six to ten days old, when, if the weather is pleasant, it comes out of the hive for the first time to avoid the accumulated excreta, and to mark the location of its home, still continuing its work inside of the hive, such as feeding the brood, building comb, evaporating nectar, capping the brood and honey, etc., until it is sixteen days old, when it goes out to labor as a field-bee, after which, if the colony continues in a normal condition, it does very little of the inside work, and dies of old age from 25 to 30 days later. While these bees that are over 16 days old can be forced, through being made queenless, to prepare chyle and rear queens, still queens so reared will work after about the same order as will the workers at field-work, when forced out after honey and pollen when only five or six days old. Therefore, in all of our work for increase outside of natural swarming, it is well so to form a colony that bees of all ages will remain with each part of any division made. This is as we always find it with natural swarms, even to the smallest of after-swarms.

"The drone lives a very precarious life; for at any time, when a scarcity of honey prevails, and the bees are not fed by the apiarist, the drones are unmercifully driven from the hive, sometimes being killed by the workers. Under favorable conditions I find that the life of the drone is nearly the same as that of the worker. This I have proven by keeping them in queenless colonies, for they will keep their drones as long as they would naturally live. To queenless colonies, drones are of greatest importance until they can get a young laying queen. There is another thing about drones that is very rarely spoken about, and that is that they are what is sometimes called 'commoners.' In other words, they have the privilege of entering, unmolested, any hive that allows its own drones to remain, and if they are driven from one hive they are allowed to enter another which is retaining its drones. Hence if some choice drones are being kept in a queenless colony for mating queens after all other drones are killed off, it is well to have such a colony in an isolated position; otherwise, drones which are driven from other colonies, and which have no special value for breeding purposes, are likely to enter with the choice drones, and thus the late-reared queens will not be all that might be desired."

General Correspondence

PURITY TESTS FOR BEESWAX.

II.—Physical Tests.

BY WM. P. MUNGER.

Continued from last issue.

The chemical methods given in the previous article are used more frequently to ascertain the nature of an adulterant than they are merely to test for the presence of an adulterant. The most common commercial method for detecting the presence of the ordinary adulterants in beeswax is the "titer test," first proposed by Dalican in 1868, and which depends on two facts. The first fact is that, as a substance changes from the liquid to solid, heat is given off. This may be easily proven by introducing the bulb of a previously warmed thermometer into the wax when melted to a thin fluid, and allowing the dish and charge to cool slowly. The fall of temperature will be quite regular at first, but abruptly mercury will cease to fall; and if the mass was superfused, that is, cooled below its freezing-point, the mercury will rapidly rise to indicate the true freezing-point of the wax, the temperature will remain at that point for some little time and then begin to fall regularly until room temperature is reached. As the rate of radiation from the dish and charge was continuous and decreasing, heat must have been obtained from the only source possible, the charge itself, to maintain the constant temperature. If the thermometer was read every fifteen seconds, and the readings plotted, a curve such as shown in Fig. 1 would be obtained. In the figure the horizontal lines represent an increase of 5° F., from the bottom up, and the vertical lines an increase of two minutes from the left. The maximum point A in Fig. 1, reached in the short rise after the mercury first ceased to fall, is the solidification temperature, or "titer."

The second fact is that, while the titer is always the same for the same pure wax or fat, the addition of even a small proportion of another fat or wax to the pure fat or wax will cause a depression of the titer, the amount of depression varying with the mixture. Fig. 2 shows the curve for beeswax-paraffin compounds, the horizontal lines indicating differences in temper-

ature as in Fig. 1, and the vertical lines indicating differences of 10 per cent paraffin in the mixtures.

An inspection of Fig. 2 would lead one to suppose that, by using wax of higher titer than beeswax, a mixture could be made which would have the same titer as beeswax. Carnauba wax, Chinese insect wax, and some few others have a higher titer than beeswax, and can be so used; but as these waxes would alter the specific gravity and other properties of the beeswax, a third substance would have to be added as corrector, which third substance would be detected by the chemical tests already given. Furthermore, if a cooling curve is plotted for each sample on which the titer is taken, a little experience will enable one to detect such a mixture by the abnormal form of the curve.

To make a titer test, take a test-tube

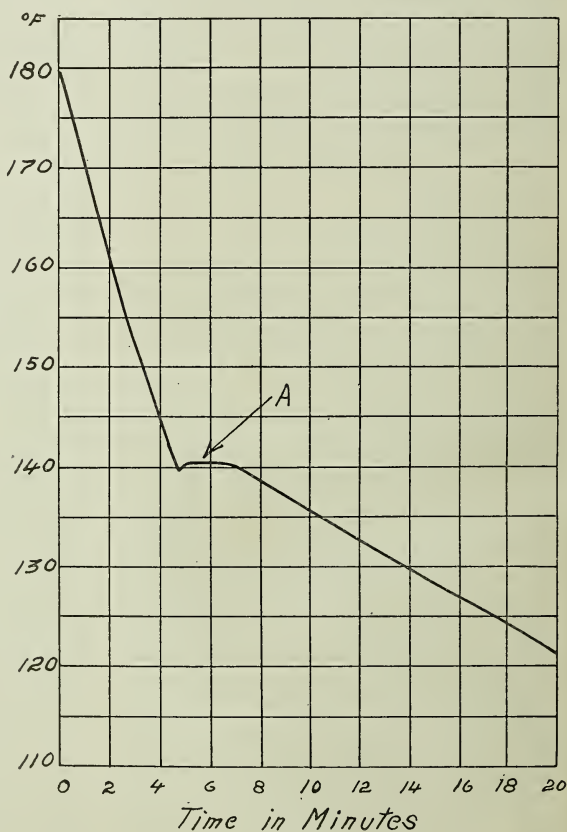


Fig. 1—Cooling Curve of Beeswax

about 5 inches in length and $\frac{3}{8}$ of an inch in diameter; fit with a ring or collar of cork or rubber, and fasten in the mouth of an empty bottle, then pour enough of the melted sample into the test tube to fill it $\frac{1}{2}$ full. Suspend a previously warmed thermometer so that the bulb will be wholly immersed and swing freely in the liquid. When the wax begins to solidify in the bottom of the tube, stir the contents of the tube by giving the thermometer first a circular movement

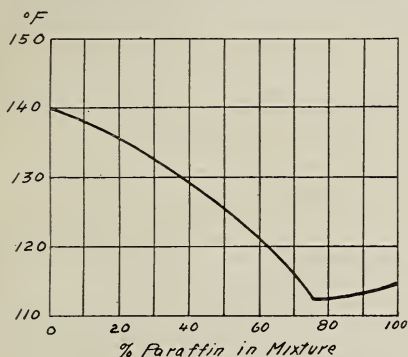


Fig. 2. Showing the Depression in Titer Caused by Adding Paraffin to Beeswax

three times to the right and then three times to the left. Suddenly the mercury ceases to fall, rises a little, and remains stationary for about two minutes. This temperature is taken as the titer; and, provided the same apparatus is used and the same method of working followed, the results are very constant.

The titer of a sample of known purity should be taken before the sample is tested, so as to calibrate the apparatus. The writer obtained 140 to 142° F. on eight specimens of beeswax from different sources; and as this figure is about that given by other observers, it may be considered as the titer of pure beeswax. For bleached wax the titer is from 140 to 144° F.

Rochester, N. Y.

RENDERING WAX IN THE HATCH PRESS.

BY HARRY LATHROP.

Inasmuch as there are many more beekeepers who handle from fifty to two hundred colonies than of those who have more, the wax machine and method suited to the larger number is important. I have recently been using the Hatch-Gemmel press, and think it is just the thing for the larger number of bee-keepers, if one knows how to operate it properly.

This is my simple method: Two copper wash-boilers are placed over a furnace out

of doors. Select a warm quiet day; fill each boiler nearly half full of soft water; start the fire and keep it going as needed, with small wood. Pile in old broken comb or whatever you have to melt. Stir well with an old broom-handle. Place the press on a box of the proper height, and fasten on with two hinges so that it can be turned over to one side readily. For a press-cloth, use a piece of heavy burlap 26 inches square. Push the cloth down in the press and make the cavity as large as possible. Use a dipper holding half a gallon. Dip about two and a half dipperfuls of the melted wax and water, and pour into the press. Fold the corners of the cloth over neatly; place the follower, and run down the screw. The spout in the bottom of the press should be tightly stopped. Press gently at first; release, and press several times, applying more force each time. The releasing is to allow the water, which will be in the bottom of the press, to saturate the cheese again and thus wash out any remaining wax.

This is really the important part in using the Hatch press. At the last, put the screw down as hard as the machine will bear, and then tip the press and pour off all the water and wax into a large can or pail. I use a tin pail holding six gallons, and furnished with a stop-cock at the bottom.

Next release the press and remove the cheese. Scrape the burlap, and use as before. I keep pressing and pouring until the pail gets too full, then open the cock and let off some water. In this way a large amount of wax is secured in the pail. When I have finished my run I set the pail of water and wax over an oil burner, and heat until every particle of wax has become liquid. Then I cover and wrap with cloths and old bed-quilts, or any thing to keep in the heat and make a sort of fireless cooker of the pail of wax. Leave it thus for three days, and the result will be a cake of wax that should bring the highest price in the market.

I would suggest that, in putting out the press, the spout be left off entirely. It is a mistake to use it. Make the rim one inch deeper and the screw a little stronger. My modification of this for men having much larger apiaries would be, simply, larger utensils—the method would be the same. Unless one has a good warm shop to work in, it is best to reserve the wax-making job for warm weather. Then one can work out of doors, and it is easier to keep every thing warm. If honey is coming in, the work can be done right in the apiary, and the bees will not bother. Making wax is a very unsatisfactory part of the work unless one has learned the trick. The Hatch-Gemmel press is, I believe, the handiest and best thing for the purpose.

Bridgeport, Wis., June 10.

[The above agrees exactly with our own conclusions after considerable experience with this method of rendering.—Ed.]

SOME OBSERVATIONS ON QUEENS.

Their Behavior and that of the Bees toward them; some Reasons for Failure in Introducing; How Clipping the Wings Improperly May Make Trouble.

BY ARTHUR C. MILLER.

[In response to our invitation, page 460, Aug. 1, Mr. Miller prepared the following notes on a few of the traits of queens, and the relations existing between queens and workers, that he has seen during his long experience as an exceptionally close observer. We are sure that our readers will appreciate these findings.—Ed.]

It may be broadly stated that all of the so-called love of the bees for their queen, as evidenced by the circle often seen about her, is merely the attraction of functional odor. When a queen is laying rapidly the bees may be noticed pushing closely about her, waving their antennæ toward and over her. Careful scrutiny will show that this attention is mostly toward the posterior part of the abdomen. It is customary for a queen to "rest" or suspend egg-production for varying periods, sometimes for ten minutes or more. At such times she usually leaves the immediate vicinity of the brood, often going on to that part of the comb containing sealed honey. Some bees will follow her, and remain about her for a minute or more. Soon the queen becomes still, scarcely moving even her antennæ. The attentive retinue disperses, working bees push her, scramble over her, and pay no more attention to her than to the comb she is on. The jostling may be troublesome, and the queen may slowly move aside. As she walks along, a bee here and there waves its antennæ questioningly toward her, but nothing more. When the queen is ready to resume her activities she starts up much as if she had just remembered some forgotten duty, walks deliberately toward the brood part of the combs, begins to investigate the cells, and, as she is about to lay in one, the attention of bees in her vicinity again becomes marked.

Such attention is not given to a queen which has long been kept from laying, nor to a virgin queen. When a virgin is about to mate, the bees do seem to notice her presence, behaving toward her somewhat differently than before. When a young queen returns from her wedding-trip she is at once the recipient of much attention from the workers, and she is uneasy and nervous; but in the course of a few hours, more or less, the bees cease to follow her, and she quiets down. As soon as she begins to investigate cells preparatory to egg-laying, the bees renew their attentions to her.

It may be well to say here that it is no unusual thing for young queens to mate twice, and sometimes three times, before they begin to lay. I have never known one to mate after commencing to lay.

When a laying queen wants food she begins to use her antennæ rather more actively than at other times. Worker after worker is "spoken to" until at last one is found

to furnish the desired food. The queen's tongue is extended and inserted into the mouth of the worker. Almost at once many workers near by extend their tongues and try to get a sip of the coveted food, and sometimes one of them will succeed. It is no uncommon thing for two workers to get food simultaneously from another worker.

This food-taking act is almost as certain the sealing of a peace-pact as the proverbial smoking of the peace-pipe of the Indians. It is the fundamental cause of the peaceful reception of a queen which has been forced to fast. It and the functional odor are the reasons for the easy introduction to one colony of a queen freshly taken from the combs of another. A queen in the full tide of her laying is almost chronically hungry. The relation between her feeding and her laying is exceedingly close. She must seek her food, however, for the workers never offer it to her. The extended tongues of workers so often observed are always seeking food, never giving it. Food is given from the mouth, not from the tongue.

Smoking, heavy jarring, or shaking from combs, starts all of the bees on a food-quest, most of them turning to the cells, but many to one another. A strange queen put among bees thus agitated develops the same food-seeking desire, and is at once a part of the colony. If the agitation is imperfect or not universal, the results are irregular.

A colony which has been much and recently overhauled does not develop the feeding desire as readily as a colony which is in a more normal condition, and a "directly introduced" queen may meet with trouble unless she has been compelled to fast, or the colony be well smoked with tobacco.

It is on account of its power to disturb the bees thoroughly that tobacco smoke is such a good medium for introducing queens. A dozen other things will serve as well. Bees do not "fear" smoke. It simply suffocates them.

If a queen is "frightened," so that she runs or otherwise behaves abnormally, the workers are quite likely to turn upon her and treat her more or less harshly. A queen that has been attacked by the workers may be safely returned to them after she has fasted for a while. If she has just been laying, a fast of fifteen minutes may suffice; but if egg-laying has been suspended for some days, thirty to forty minutes may be necessary.

"Timid" queens are not at all uncommon, and it is easy to understand that a strain of bees may have that trait characteristic of the queens. It can be bred out; but under common conditions of bee-breeding the process is somewhat slow and uncertain, and the trait may reappear unexpectedly later. The better way is to change to another strain.

It may prove helpful to know that, other things being equal, the strains in which the queens have long slender abdomens (sometimes called "rat-tailed") are better brood-producers than the plump or fat type. The

reasons for this are quite evident when one studies a queen in action, particularly in profile view.

When a queen backs into a cell her wings slip over the surface of the comb and steady her, and they materially assist her to get out of the cell; hence, never clip both pairs of wings; and of the pair clipped, cut only enough of the large wing to take the tip of the smaller. Such clipping never causes supersedure. In the queen lies the solution of many of the troublesome problems of bee culture.

Providence, R. I.

THE BEE-RANGES IN SOUTHERN IDAHO.

The Territory Already Fully Occupied.

By the Secretary of the Southern Idaho and Eastern Oregon Bee-keepers' Association.

The Southern Idaho and Eastern Oregon Bee-keepers' Association, whose members assembled at a midsummer picnic and field-day meet July 21, at Lake Lowell, near Caldwell, passed the following motion in its business session on that occasion: "That through the association the misstatements made in the letter of J. E. Miller, of Caldwell, Idaho, which appeared on page 408, July 1, be corrected."

In justice to Mr. Miller, the association must state that it bears him no ill will, believing that, as he was evidently uninformed of true conditions in Idaho, he unintentionally misrepresented.

As directed by its members (who consist of the bee-keepers of Southern Idaho and Eastern Oregon) the association hereby makes the following corrections in Mr. Miller's letter:

First, the bee-range of Southern Idaho, in which territory the majority of the members of this association are located, is at present fully occupied—a statement contrary to the impression given by the writer of the above-mentioned letter, that there is an abundance of room for more bees here. There is not. On this point the association desires to make itself clearly understood in order that outside bee-keepers who think of locating in Southern Idaho may gain an uncolored statement of true conditions here at the present time. In Northern Idaho there may be, for all the Association knows, plenty of acreage for bees; but in this portion of the State the territory for bees is fully stocked, supporting as it does now not only some 10,000 colonies owned by native Idaho bee-keepers, but the several carloads shipped in by eastern apiarists within the last year or two. It is true that here and there an obscure location can be found; but they are scarce, and able to support but a few bees.

To be more definite, the bee localities around Boise (which forms the southern border of the bee-range to which the association refers), Nampa, Meridian, Caldwell, Weiser, Payette, and Parma now support as many colonies of bees as can reasonably be expected in this western county.

Every bee-keeper realizes the harmful results, both to himself and the locality in which he lives, of overstocking. This has been shown again and again, and can not be too strongly emphasized. A conscientious bee-keeper also realizes that, while he has a legal right to plant an apiary wherever he has the same right to plant a potato-patch, he by no means has a moral right to do so when he infringes upon the rights of a fellow bee-keeper. This is precisely the conclusion reached by the members of the Idaho association at their annual convention held in January, when a committee of three was appointed for the purpose of coming in touch with newly arrived bee-keepers, and pointing out to them the unoccupied territory for bees, which is indeed scarce. It is expected, however, that in the near future, new land, devoted principally to the production of hay, will be opened up in Idaho, in which case the honey-producing capacities of this State will be greatly increased. To any bee-keeper desiring further information concerning Idaho's bee-range, the members of the executive committee of the association will be glad to furnish it.

Second, the real facts concerning foul brood in Idaho conflict decidedly with these statements:

1. "If this bee-range were occupied by competent bee-men it would be only a short time when all foul brood would be wiped out."

Does the writer of the above consider the fifty or sixty apiarists of Southern Idaho, who keep from 100 to 1000 colonies each, small in number or incompetent in management? They were progressive enough when, over a year ago, unable to obtain a foul-brood appropriation, they raised a fund for that purpose from their own pockets.

2. "We have a very good foul-brood law, but no appropriation with it, so the inspectors get no pay, and consequently do but little work."

This statement, appearing as it did in the July 1st issue, is hardly true, since in February, 1911, over five months before, at the last session of the Idaho legislature, the bee-keepers obtained a satisfactory appropriation of \$1000. Since that time some fifteen or twenty competent bee-inspectors, who cover the honey districts thoroughly, have been appointed by the State Horticulturist, to whom any one desiring names or further proof is referred.

THE REQUIREMENTS OF A SUCCESSFUL HONEY SALESMAN.

BY M. D. TYLER.

After reading the experience of so many different men in selling honey and comparing their methods, I wonder after all whether the secret of success is not due largely to tact on the part of the one selling it. The way a prospective buyer is approached, and the drift of the conversation, make as great

a difference in the sale of honey as in any thing else. Some men will try to provoke the ill humor of a salesman, thinking that he will go away provoked. It works well to stick to it until such people buy.

For eight years all of my attention has been given to bees and the sale of honey. When I first undertook to dispose of my honey, it was in small towns and to farmers. I soon discovered that they had been swindled so often that some of them could not be persuaded that my honey was pure and that it was not manufactured from sugar. One man even quoted an instance of a gallon of honey he had once bought, in which there were some peppermint lozenges. This was conclusive evidence to him that all honey must be counterfeit.

Later I invested in a covered wagon, similar to the laundry wagons used in the city, and then went with my honey beyond the limits of the county. I carried from two to three hundred quarts put up in glass jars, nicely labeled, selling at fifty cents per quart.

Several times I shipped ten or twelve five-gallon cans of honey to the city forty miles from home. As soon as I reach the city, after stopping at the small towns on the way, I rent a room, buy quart glass jars by the gross, and have them delivered at the room; and when the load I started with is sold out I proceed to put up the honey that I shipped there. People always enjoy watching the process of filling the jars and it soon draws a crowd of interested spectators whom I invite to taste it. Many remark that everything seems so clean; then, after inquiring the price per quart, will buy one jar, saying that if the folks at home like it they will want more. Usually buyers of that kind return and take from three to six quarts.

As soon as the honey is all put up and the cans labeled, I carry with me enough to last one day, usually about two hundred jars. I never go from house to house, but visit bankers, lawyers, merchants, and business places. At one hardware store where I stopped, I asked the proprietor if he wanted some good honey. He replied that he had just bought two quarts of a neighbor who sold honey by going from house to house. "How many quarts does he average each day?" was my inquiry. "Six," he replied. "Why," I said, "that wouldn't pay my expenses. If I can't average one hundred each day, I will quit." He smiled; but that noon, when the whistles blew, I had sold seventy-five quarts.

One time I got into a nest of seven lawyers, one of whom was writing, and the others were engaged in conversation. The former asked me if I had honey, and said he didn't want any, and wouldn't take any as a gift. When I insisted that they should sample it, the one who tasted it first, pronounced it fine honey, then they all tried it; and the scribe, who at first didn't think he would care for it as a gift, began to question me about bees. I took their bantering about "hayseeds" good-naturedly, and when

one of them told me that he would buy some honey if I would vote for Governor—at the next election, I told them that I was a Republican, and that I had voted for Governor—once; and that if they could tell me a single good thing he had ever done for the farmers I would vote for him again. They laughed, and then I told them a good story about the candidate for that year, and each one bought a can of honey. The stenographer in the next room stepped to the door and said she wanted one can. Just then a policeman came up to inquire what was the excitement and said, "Well, if that is the case, I will take two cans."

Perseverance always helps in the sale of honey; for if one can be induced to buy, others will follow. Last fall my sales for two months amounted to over 61 cwt.

Seville, Ohio.

DIFFERENCE IN BEES WHEN INTRODUCING.

Introducing a New Queen Before the Bees Realize the Loss of the Old One.

BY SELVIUS J. MORRISON.

I want to tell how I use the candy plan to introduce queens without loss, into colonies full of open brood. Just at dusk I go to a colony that I wish to requeen, and kill the reigning queen, putting the new one at once in a cage. I take one frame from the middle and put the cage with wire cloth next to the comb on the bottom-bar, being sure that the candy end of the cage touches the brood-comb. The queen thus detects the comb odor of hatching, and she is on the brood-comb at once when released by the bees.

As queen-cells are always nearer the bottom of the combs, I have found this the best way to introduce queens. With this method the bees hardly realize their loss, and very seldom build cells. Italians rarely build cells. Blacks are the worst, for they will do things that one does not like. Carniolans and Banats are the best, as their queens are accepted more quickly than those of any other races I know of. I never find a cell started in colonies where I have put them.

Chico, Cal.

The A. I. Root Co.—I know but very little about bees, my experience being only such as I received from your A B C of Bee Culture, and from what experience I received from a nucleus which I bought of you last May, from which I took off 56 boxes of very fine honey, which was only about half as much as I should have received had not a drouth occurred in the middle of June, which burned up every thing, and the honey-flow stopped, the fall not being much better. However, my 1910 bees went into winter quarters in a ten-frame hive with every frame full of honey, overflowing with young bees, no swarm having issued from them, as I had given them sufficient room. They came out this spring in fine condition, being wintered on their summer stand with but very little loss. They are now (May 10) doing well.

Crafton, Pa.

W. O. H. ELLIOTT.



Fig. 18.—A 200-colony apiary of J. K. Isbell, of Wewahitchka, in the white-tupelo belt, West Florida. Mr. Isbell in foreground. This yard yielded 32,000 lbs. of honey in 1910.

BEE-KEEPING IN FLORIDA.

Some Representative Bee-men.

BY E. G. BALDWIN.

Continued from last issue.

Did space and time permit, it would be well worth while to chronicle the vicissitudes and victories of such men as Mr. Chas. Harris, of Holly Hill; Mr. R. S. Shelton, of New Smyrna; Captain Detwiler, of New Smyrna; Mr. Geo. A. Van de Vorde, of Daytona; Mr. A. E. Brown, of Harwood; Mr. Henry Mitchell, of Hawks Park; Mr. J. M. Hall, of Fort White; Mr. W. J. Drumwright, and many others. It would make interesting reading. But no picture of bee-keeping in Florida would be complete without a more detailed record of the bee-men who form an interesting group in the swamp lands along the Apalachicola and Chipola rivers in Calhoun Co., West Florida—the so-called tupelo belt. This section is only about 75 miles long by 10 or 20 broad, but contains more than 6000 colonies, owned by comparatively few bee-men. The owners are veritable princes among apiculturists. Among this coterie of tupelo-honey producers are Messrs. A. B. Marchant, of Sumatra; J. K. Isbell, Messrs. Higgins & Hollinger, and Mr. S. S. Alderman, of Wewahitchka. Some men there own as many as 1400 colonies. Near Mr. Isbell are over 1800 colonies in nine yards, none more than

two miles apart, and many within half a mile of him, nor is there any overcrowding. Mr. Isbell probably produces as much per colony as any man in the number. He secured an average of 140 lbs. per colony in 1910, in an apiary of nearly 250 hives, in one place. The shade is afforded mainly by the live oak that flourishes there. The home apiary of Mr. Isbell (shown in Figs. 18 and 19) contains 297 colonies, but having 231, spring count, from which he secured the past year (1910) about 88 barrels of choice tupelo honey, nearly 32,000 lbs. See the article, "White Tupelo," under "Florida Honey-plants." Mr. Isbell is shown in the foreground, right, in Fig. 18. That he believes in strong colonies is

proved by the fronts of the hives shown in Fig. 19. He writes: "You will notice a few bees clustered on the outside of the hives." It is not difficult to imagine what the inside of those hives is like, if the mass of bees on the first hive shown there, for instance, is only a "few" of the bees in the colony. In the height of the season the entrances are kept fully open, an inch or more deep, all around. Mr. Isbell has been a resident of Florida for 17 years; a bee-keeper for 15. He uses full sheets of foundation in brood-frames, and in ten-frame L. hives, painted. From the dragon-fly he suffers some loss of queens, but not from forest fires, which do not trouble in that section. Only one year, that he remembers, did he suffer serious damage from cold. In 1899 much of the brood in the hives was frozen.

Mr. S. S. Alderman, already mentioned, is probably the pioneer bee-man of that sec-

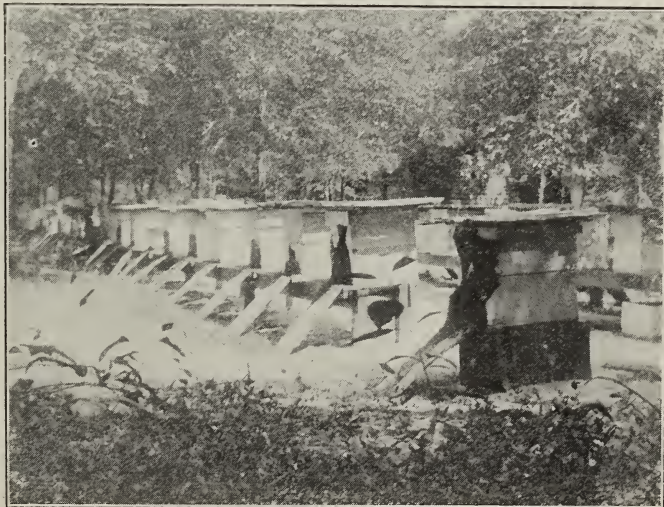


Fig. 19.—Some of Mr. Isbell's giant colonies shown in the spring when they were very strong.



Fig. 1.—A group of button sage in bloom. The taller sprigs are of a hybrid variety.

tion, having kept bees there continuously for 39 years. When he moved into Calhoun Co., no one there had ever seen a movable-frame hive. He now owns seven out-yards, averaging 200 colonies per yard. Notice how much larger the yards run here than in South Florida. The reason has already been given; viz., the prevalence of forest fires in the southern portions. Mr. Alderman produces both comb and extracted honey, but finds more profit in the latter.

One peculiarity of the region is the lack of pollen. As a result it is often necessary to migrate with the bees for that very necessary article. The bees are placed on flat-boats and hauled up the river to the cotton-fields of Alabama for the pollen, and brought back in winter. This is done after the flow from tupelo is over. Mr. Alderman, too, uses full sheets of foundation and the ten-frame L. hive.

Reference has already been made to the recent trouble Mr. Alderman has had with ants and bears. I have likewise alluded above to the very choice sample of white-tupelo honey received from Messrs. Higgins & Hollinger. This group of apiarists, operating in the tupelo-belt, are broad-minded, gladly sharing with their brother bee-keepers any ideas they may have developed in the successful running of large apiaries—a spirit, by the way, that I have found very general over our State. Probably there are some small-minded, narrow bee-men in Florida. No State could expect to be with-

out at least a modicum of them. The writer, however, has never yet run amuck of such in the land of the palm and the pine.

De Land, Fla.

The End.

THE CALIFORNIA SAGE, ILLUSTRATED.

BY P. C. CHADWICK.

The illustrations in connection with this article give a good idea of the button or black sage, and also the white sage, the former being the king of all our honey-plants, as it produces on an average more than all the others combined. The orange-blossom alone exceeds in the quantity of honey yielded; but the orange covers only a small area, and the blooming season is much shorter. The button or black sage begins blooming in April, as a rule, and lasts until about June 10, producing the very finest water-white honey, of a heavy body, for which there is a world-wide demand.

A hybrid sage shown in Fig. 1, and especially in Fig. 3, is a cross between the white and the button or black sage. It does not abound to any great extent. It sometimes favors the black and sometimes the white, according as the individual crosses happen to run. Fig. 3 favors the white decidedly in leaf and stalk, but has the distinct "button" nevertheless.

Fig. 4 shows a range nearly a mile wide and about two miles long of practically unbroken white sage. The roadway shown

leads to my apiary, and runs through it, as the bees are located near the center. There is practically little but white sage as far as one can see. Fig. 5 shows a closer view of the white sage. The time of bloom is usually before the black variety is gone, or about the 20th of May; but this blossoming period varies somewhat more than the black, and it lasts from six to eight weeks. White sage is not a heavy yielder as a rule, but in occasional seasons it yields abundantly.

The wild alfalfa, as shown in Fig. 6, is our greatest enemy of water-white honey. It blossoms during the black-sage season, and often on cool cloudy days attracts a heavy flight of bees from the sage, as the latter does not yield so well in such weather, while the wild alfalfa is then at its best. The honey is amber in color, and therefore darkens the sage honey rapidly.

The tallest sprigs in front in Fig. 6 are the wild buckwheat, one of our greatest (if not the greatest) producers of late amber honey.

Redlands, Cal.

A HOME-MADE WHEELBARROW FOR USE IN THE APIARY.

How to Make One for Seventy-five Cents.

BY E. M. GIBSON.

Those who contemplate starting, or those who are already in the bee business, who *carry* honey to the extracting-rooms, may

get some information by reading this article and studying the accompanying photo. I will begin with the wheelbarrow, and try to tell how to make one like it. I will admit that it is not a thing of beauty, but it is surely a joy to work with in comparison with other methods I have seen used, especially in instances where the hives stand on benches.

The wheelbarrow here shown has stood the "racketing" for fifteen years, and is as good as when I made it. It has been housed when not in use, as are all my other tools and unused hives. I find it very convenient to have two at each apiary, as we quite frequently need one when one is in use. In a heavy flow of honey it is sometimes necessary for two persons to take off honey, and these barrows are so cheap and easily made that one can not afford to be without one or more. The one here shown cost me 75 cents, and the others about the same amount. A turner charged 25 cents for turning the handles—the wheel, 25 cents, and the blacksmith charged 25 cents for the wheel-fastenings. The lumber required to make one is so short that enough could be picked up around almost any place; and if one had to buy it, it would cost but a trifle. Two or three hours' labor is all that is needed after the material is at hand.

Nail two three-inch strips to the under side of the handles to hold them the proper distance apart, one near the wheel and the other near the legs. Saw a board 3 feet 6



Fig. 2.—The button sage passing out of bloom. The small blossoms on the outer edges of the buttons show that the season is nearly over. The buttons begin to appear next each stock which they surround, then they expand, finishing near the outer edges.



Fig. 3.—A hybrid sage, a cross between the white and button sage. It sometimes favors the white and sometimes the button. This specimen favors the white in leaf and stalk, but has a distinct button.

inches long, and 10 inches wide diagonally across from opposite corners, and you have two wedge-shaped pieces. Fasten the straight edge to the handles with the wide end toward the wheel. Brace each side piece to the handle on the opposite side. Of course the wheel fastenings and wheel should be put on before the handles are fastened together. Nail on the boards for the platform, and nail a $\frac{3}{8}$ strip on the front end and sides to keep the

boxes from slipping off. Put on the legs and brace them, and you have a handy conveyance, not only for getting honey to the extracting-room, but for moving hives and other material. Always load the honey-box nearest the handles first, and you will not upset your load of honey. It is important to remember this. I was particularly emphatic in telling one of my helpers how to load; but he had to upset twice before he could remember it.

The honey-boxes should be one inch deeper than the frames, to allow for accumulations at the bottom, and should hold one more frame than the hives one is using, for convenience in getting them out, and leaving room for thick combs, brace-combs, etc. The covers open in the center, and are put on with strap hinges. I used only two hinges for each door until last year, when I added another. Two are hardly sufficient to stand the

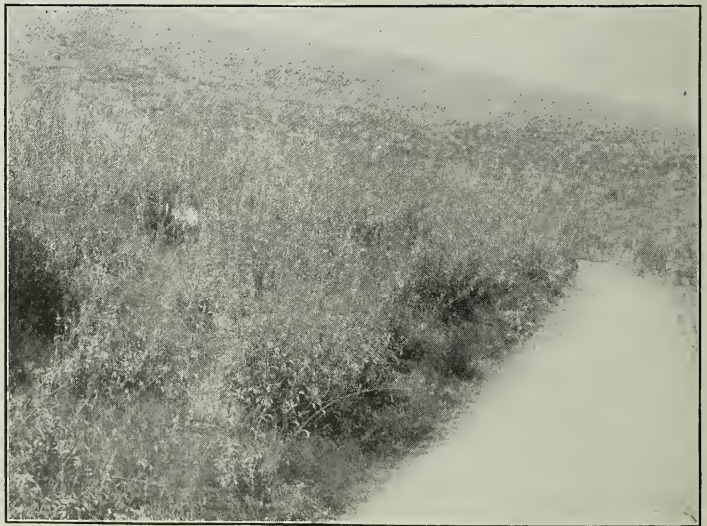


Fig. 4.—A range of white sage nearly a mile wide and two miles long surrounding the apiary of P. C. Chadwick, Redlands, Cal.

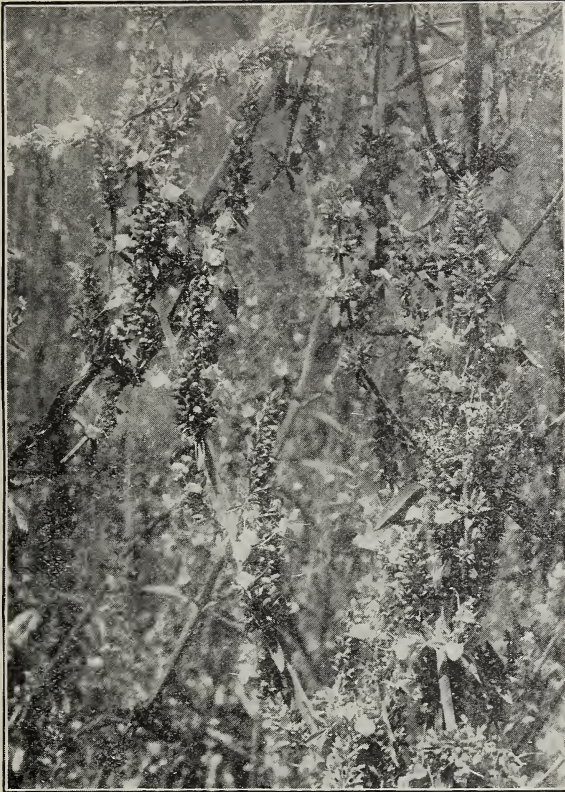


Fig. 5.—A close view of white sage.

rough usage they get when business is rushing. The ends of the boxes should be made of $1\frac{1}{4}$ -inch lumber to give a better hand-hold, and a stronger rabbet than one-inch material will make. The covers should fit tight enough so the bees can not smell the honey in the boxes. I have six of these boxes at each apiary; so, when necessary, two persons can take off honey.

Compare this picture with one in which a person is bent half double over a hive standing on the ground with another hive near him also, standing on the ground, with a gunny sack thrown over it in which he is putting honey, and, when filled, *carrying* it to the honey-house. When inside, on taking off the gunny sack thousands of robber bees fly out; and the windows, having no escapes, they hang about them in clusters. This picture is not overdrawn, and I know of two bee-keepers who have 600 to 800 colonies each,

who are using these same methods now, or were a year or two ago.

SPLINTS A MUCH BETTER SUPPORT THAN WIRE.

The frame of foundation shown in the engraving is a sample showing the way I put them in with the Miller splints last year. This year I am putting the splints nearer the end-bars, and adding another splint in the center. The ends of the foundation sometimes bend to one side when the splints are too far from the end-bar. The frame of drawn comb here shown was built out on foundation put in in this manner, and is as near perfect as I ever expect to get them. This plan is a great improvement over wiring, in my estimation. Since I followed the doctor's directions I have been relieved of a trouble that always bothered me while I was wiring frames; for, no matter how well the frames were wired or how heavy the foundation (I have used, for experiment, foundation that weighed only four sheets to the pound), it would sag and elongate the cells near the top; and if I cut the sheets wide enough for the bottom-bar to give them support they would buckle at the bottom.

Dr. Miller states, in the *American Bee Journal* for May, that

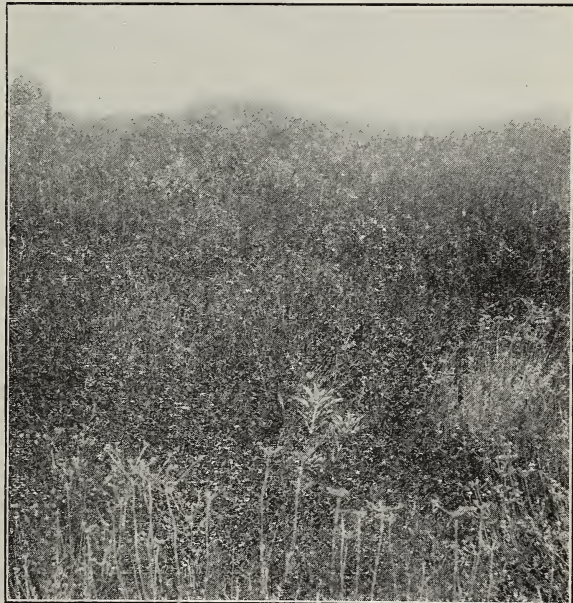
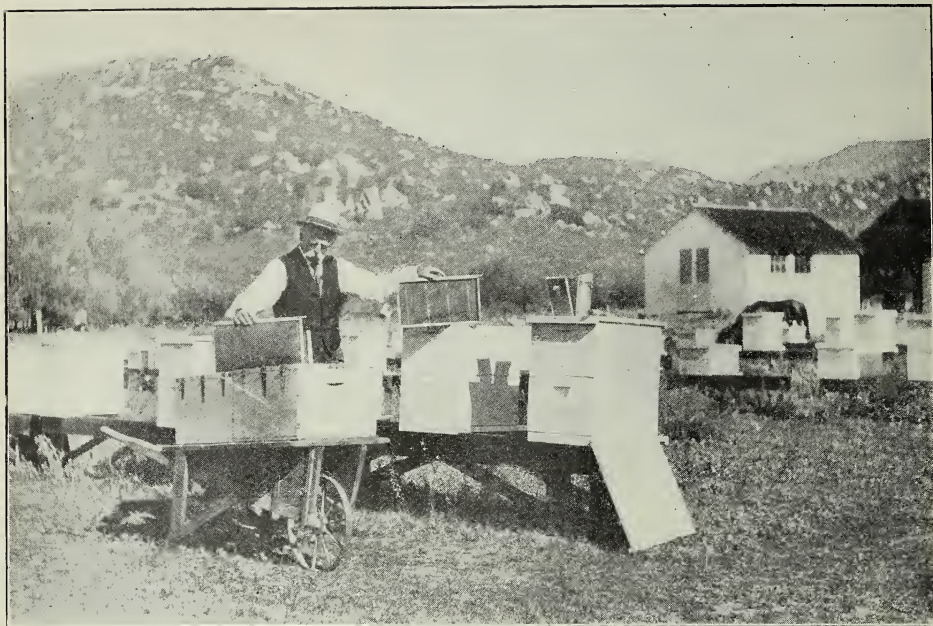


Fig. 6.—A field of wild alfalfa in California, the plant that yields amber honey, thus discoloring the water-white honey. The taller sprigs in front are buckwheat.



Gibson's 75-cent wheelbarrow that is as good as new, although it has had 15 years of hard service.

some of his frames have whole-piece bottom-bars, and he likes them just as well. I prefer the divided ones for various reasons, one of which is that it saves a lot of fussy work sticking the foundation to them to be pulled loose again by the bees if set aside until cool weather comes. The bees invariably did this for me, and I stuck the sheets on with wax as hot as the foundation would bear without melting. The $\frac{1}{8}$ inch taken off the bottom-bar weakens it somewhat; but, even so, it still contains more wood than any other that I have ever seen. After the bees get the divided space filled with wax they seem as solid as whole ones.

A VENTILATED BEE-HAT.

I intended to have my bee-veil on when this picture was taken; but it was taken only for illustration, and not in the honey season; and the bees not being cross I forgot it. I should think it would bother a person to get into some of the veils I have seen in the pictures. Buy a broad-brimmed braided straw hat; cut the crown off $1\frac{1}{2}$ inches from the rim by cutting the stitches. Cut a piece of screen wire $\frac{3}{4}$ inch wide; bend the selvage under so the ends of the wire will not catch in the veil. Leave $\frac{1}{4}$ inch space between the two parts of the hat for ventilation; sew the wire over the space and on the hat, and it will be as strong as before it was cut. Buy the best flat silk elastic (the round is no good), and use a single piece to go around the top over the crown of the hat, and a double piece to go around the neck, and have it fit tight, then no bee will ever get near your face. I have one or more at each apiary, and they are always left there ready for use.

My little niece used to like to stand on a footstool and comb my hair while I sat reading; but one day the footstool was missing, and she drew a chair up and climbed on to it, which raised her high enough to see the top of my head, where there was a thin spot about the size of a silver dollar. Putting her hand around and pulling my face toward hers she looked into my eyes with her large black ones and said very seriously, "Why, uncle, your head is wearing out on top." If any one whose head is badly worn on top should make one of the bee-hats herein described for his own use, do not leave the space in the crown of the hat more than $\frac{1}{4}$ inch wide or your head will get sunburned. This will give plenty of ventilation, and will be very comfortable to the wearer.

Jamul, Cal.

ECONOMIC VALUE OF THE TEXAS MESQUITE.

BY LOUIS H. SCHOLL.

One of the main sources of nectar for the Texas bee-keeper is the mesquite brush and trees that cover a very large area of the vast Lone Star State. As unimportant in appearance as this bushy tree is, it is of greater importance to the bee-keeper than most people suppose.

The mesquite (pronounced *mes-keet*), *Prosopis juliflora*, has two separate and distinct blooming periods during the year. The first comes during April, and the other during the end of June or the beginning of July. These periods are sometimes a week or so later or earlier, according to the condi-

tions of the season, the lateness or earliness of the spring, cold weather, and the quantity of rain during the preceding fall and winter. In this last respect the mesquite is peculiar in that, if rain has been plentiful in the fall and winter, no matter how dry the following spring or summer may be, there will be a profusion of bloom and a heavy flow of nectar. This is due to the character of the plant, in that it stores up sap, as it were, from which it is enabled to put forth its growth, and also that its roots penetrate the soil to a great depth, spreading out quite a distance in the soil. It is remarkable how a very small shrub of the mesquite is supplied with these large roots in proportion to its size. It shows at once that it is well adapted, therefore, to a dry region.

The quality of the honey is good, and of a light-amber color. It has been said many times that mesquite honey could be used better for an every-day table honey than any other of the Texas honeys, since one never tires of it as he is apt to do with honey that has a particular flavor.

Fig. 1 shows some of the branches in full bloom, the long spikes of feathery blossoms measuring from three to five inches in length. When the second blooming time arrives, the beans from the first blooming, which are from six to eight inches long, will be in all stages of ripening. These are greedily eaten by all kinds of stock and cattle, and are of considerable value in this way. Even human beings find that these beans have a good taste, and children particularly relish them each season as they ripen. They vary considerably, however, in taste, some of them being so bitter that they can not be eaten, while others are very sweet and agreeable. One learns very readily which are the best, even by the looks.

The wood of the mesquite is valuable for furniture and cabinet work, as it takes on a fine polish, and mesquite fence-posts are used very extensively. A rosin exudes from bruised places on the trunks and limbs in considerable quantities. Thus it will be seen that the humble, brushy, unimportant-looking mesquite-trees have quite an economic value.

A serious aspect, however, is that the mesquite prairies are for the most part well adapted for agricultural purposes, and the result is that great areas of this land are put into cultivation as the country is being settled up. Fortunately, however, the greater part of the cultivated area is planted in cotton, and this is as valuable as the mesquite as a honey-yielder; hence the bee-keeper need not fear that his locality will be ruined



Fig. 1—Some branches of the famous mesquite of Texas.



Fig. 2.—Scholl's apiary-wagon for hauling bees.

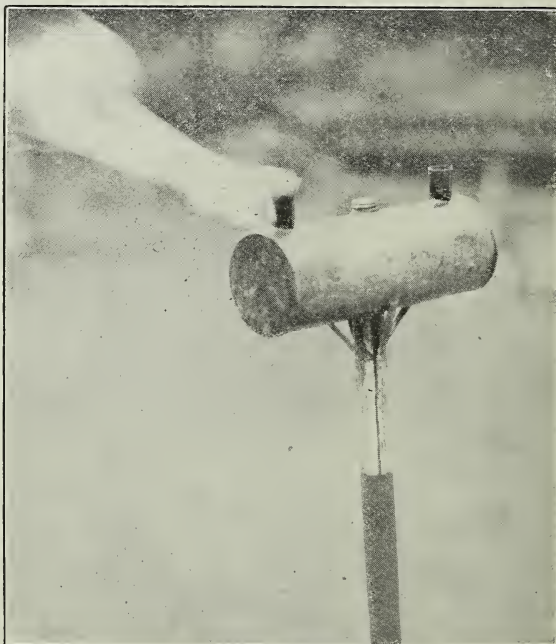
by the disappearance of the mesquite, except in places where cotton does not do well.

SIX THOUSAND IDEAL SUPERS.

In answer to the question asked by a number of bee-keepers as to whether I am still as staunch a friend of the shallow supers, both as supers and brood-chambers as well, as advocated by me years ago, I wish to say that the longer we use them the better we like them. And to offer proof of my statements I can do no better than to mention to what extent we use them.

It was in 1897 that we ordered 20 ideal ten-frame supers with shallow $5\frac{3}{8}$ -inch-deep Hoffman frames, to be tried as divisible-brood-chamber hives side by side with the regular eight and ten frame Langstroth size, already in use. It was our intention to test thoroughly, and, if not satisfactory for divisible brood-chambers, they were to be used as supers over our regular ten-frame hives, and therefore would not be any loss or expense. The results were that they did not have to be changed to supers on account of being unfit for the purposes for which we tried them, and our success with them was so satisfactory, and the advantages of the divisible hives were so great, that we have been procuring nothing else for our constant yearly increase during the last fifteen years. Our last purchase consisted of a carload of 3000 such supers, together with nearly 1000 pounds of foun-

dation made especially for the shallow frames we are using. All these supers are ordered in the flat as usual, and then nailed up here. The above lot, after being put up, was enough to fill nearly three average railroad cars. To ship 1500 of the supers to our apiaries, nearly 200 miles away, it was necessary to procure one of the largest furniture-cars, more than 8 feet wide and 8 in height, and 50 feet long inside. Fig. 2 gives



S. D. House's "moth-torch."

the reader an idea of how these were shipped.

Our ideal bee-wagon is shown, loaded with 160 such supers crated with one of our bottoms below, and a cover on top of each stack of nine supers, held together by a common plaster lath, four feet long, tacked on with some small shingle nails. Thus crated they are easily handled, and our wagon is so handy for the purpose that it is a pleasure to haul them with it. The extra-long bed, being 14 feet long, will accommodate 20 ten-frame hives side by side in two rows without any tying being necessary. This saves lots of time and vexation. For hauling bees, a double-tier load takes just forty colonies, and the wagon rolls so easily that two horses trot away with large loads on any level road.

The frames that we use in these shallow supers here in Texas are somewhat different from the usual one put out at the factories, in that the top-bars are only $\frac{3}{8}$ inch wide, but full $\frac{1}{2}$ inch thick. This makes them stronger to prevent sagging, and the narrow top-bars give much more free communication between the several stories, which is of far greater importance than many suppose, especially in the brood-chambers, and equally so in the supers. It does not only allow the queen freer passageway from one shallow story of the brood-chamber to another in her laying, but the bees go above into the supers much more readily, and also from one super to another as they are tiered up during the honey-flow. These frames are often called the "Scholl shallow frame" because we first tried them fourteen years ago, and have been strong advocates of such ever since. To obtain them it has always been necessary to specify these top-bar dimensions in the order or the wider flat top-bars were sent. Until recent years such frames had to be made to order altogether, but now they can almost always be obtained at our large Texas supply-houses. It is necessary, however, to state that the half-inch-top-bar frames are wanted, or others may be substituted if the dealer has them.

So far we have in use 6000 of these shallow supers, and our increase in the bee business will demand another carload of them next winter. Is this sufficient proof as to whether we are satisfied with them?

New Braunfels, Texas.

THE CARE AND GRADING OF COMB HONEY.

How to Grade, Fumigate, and Pack so that the Honey will Reach the Consumer in Perfect Condition.

BY S. D. HOUSE.

The season for the care, grading, and marketing of honey is at hand, and it demands as thorough attention as any part of our vo-

cation. I have seen crops of fine honey produced by practical bee-keepers that, by improper storage and handling, were made third-class goods. Some of the trouble begins with the making of sections, especially with the one-piece section, which many bee-keepers simply fold together, since they will unfold as easily as they are folded. The only additional strength they have is that which the comb gives to them. Such sections show more or less leakage; and what can be worse and less appetizing than a section filled with honey which is leaking out and collecting the dust from the store, to say nothing of the vexation of the clerk in getting his fingers daubed with it. If all one-piece sections are glued at the dovetailed ends at the time they are folded, much leakage will be avoided.

We prepare our sections by spreading out about twelve sections (groove side up) over a board with a back nailed to it, one end of the section being pressed against this back. This brings all the grooves in line. Now with a thin two-inch flat brush we water the grooves, then place another tier of sections on top of the first, and so on until we have twelve to fifteen high. Then we take one of the upright piles and draw it forward; hold the pile with the fore fingers, and with the two thumbs press the pile backward so that the dovetail shows on each section, the pile then resembling a miniature pair of stairs. With a piece of section dipped into prepared glue we draw it down over the dovetail ends, leaving a small drop of glue on each dovetail. After the section is folded in a Hubbard press a ridge of glue is found on the inside corner, which acts as a brace and makes the section strong, and a help to hold the comb, instead of the comb holding the section together.

Again, many sections of honey are racked badly in taking them out of the supers. They may not show it at the time they are taken out, but later there is a leakage. Supers with open-top wide frames can be turned upside down upon the bench, and, with a piece of board laid across the ends of frames, with the aid of the hive-tool, all may be pressed out of the super at once, when they can be pried apart without injury to comb or honey.

Sections should be thoroughly cleaned of all propolis, and cased according to the different grades. The essential qualifications of the operator in grading honey should be honesty of purpose, and a knowledge of the requirements of each grade. He should put each section where it belongs, not allowing the penurious penny to blind him.

I am sure that a large majority of those who make mistakes in grading honey do so through lack of proper knowledge of what is demanded. The first rule to govern one should be to class the honey as white, amber, dark; then divide each class into grades—the white honey in three grades—fancy, No. 1, and No. 2; and the other two classes in two grades each—fancy and No. 1. In buying honey I have found No. 2 sections

in a case marked "fancy," and the only qualification they had was being filled to the wood, the surface of the comb being nut-brown in color. Many bee-keepers make this mistake, thinking that a section of honey sealed to the wood must be fancy, when most of such sections are only No. 1 from the soiled surface of the comb. It is better to remove honey from the bees as soon as it is sealed, all but the outside row of cells next to the wood, which will save the appearance of the capping from travel-stain. In removing comb honey from the bees the escape-board is one of the most convenient inventions given to the fraternity since the movable-frame hive. By its use we can remove the honey without the least annoyance or damage.

When possible, comb honey should be stored in the supers until the time arrives for cleaning, grading, and crating it. Exposure to damp atmosphere has ruined many fine crops of honey. To test this, take a section that has some open cells filled with honey. If, when holding it over on its side, the honey runs from some of those cells, you will know that the honey has taken moisture. If it has been left so long as to break through the cappings, heat should be applied at a temperature of 100 degrees for several days, and thereafter at 80 degrees. If the honey-room has a southern exposure, and the doors and windows are kept closed night and day, the room will warm up during the day; and by not allowing the air to escape it will keep warm through the night, and usually will not need any artificial heat unless kept until cold weather.

While the honey is in the supers, stacked eight to ten high, I fumigate with bisulphide of carbon by placing an empty super on top of the tier, and in it a saucer with one ounce of bisulphide. I then cover it with a heavy cloth, allowing it to stand and evaporate. If this is done at the close of the day's work the building can be closed and locked. There should be no fire or blaze in the room after the bisulphide is exposed to the atmosphere, as it is an explosive.

I also use a torch that has a strong open light, set in the bee-yard for an hour or two in the evening, which catches many millers by scorching their wings as they fly through the blaze. See illustration.

If we are to advance and maintain prices for our product we must have uniform grades, and use packages for shipping that will reduce the breakage to a minimum that we may get better freight rates. I understand that our supply-dealers are going to give us a better shipping-case, lined with corrugated paper, which I am quite sure will reduce the breakage at least one-half. When comb honey is shipped in small consignments the cases should be in carriers of not over eight to a carrier, with a placard stating what it is and how it should be handled. In fact, bee-keepers should do all that is possible to get their product in the hands of the consumer in a perfect condition.

Camillus, N. Y.

THE GRAVITY STRAINERS NOT ADAPTED FOR THICK HONEY.

BY O. B. METCALFE.

On page 327, June 1, the editor asks for reports on the Powell gravity strainer. I am ready to report now, for I tried that principle two years ago, and found that it was not practical for our thick honey. In place of the iron pipe used by Mr. Powell I soldered a semi-cylindrical piece of galvanized iron up the outside of the tank, and a spout on this. This was cheaper, lighter, and (I should think) much more durable, as it could not be so easily knocked off. The one I made was 24 inches in diameter and 36 inches deep. I used a screen at the top to catch all large particles, and to spread out the honey so it would not pour down with such force.

When I made this strainer the idea was original with me; and as it was the first gravity-strainer scheme I had ever tried I expected to revolutionize soon the bunglesome old methods of straining and settling honey. I expected to draw the honey right from it into five-gallon cans ready to ship. If I had to run it into a big settling-tank I would not be bothered with it, for I can skim a five or seven thousand pound tank, and forget about it, while I could clean up such a contrivance as the Powell gravity strainer. I think, however, that for bee-keepers who have thin honey it will work well enough to can direct from it. Some may wonder how they are to know whether or not their honey is thin enough to strain with such a small gravity strainer. If I understand the physics of this gravity-strainer proposition it is as follows: The can must be of sufficient diameter so that the column of honey will not move downward faster than impurities will rise in the grade of honey to be strained. Could not a bee-keeper who wants to know how large a gravity strainer he needs take some of his thick honey as it comes from the extractor, and, by pouring it into a tall glass vessel, note how fast the impurities rise in it, and, taking into consideration how fast he extracts honey, figure about how large a strainer he will have to have without trying all sizes as we did?

We have finally settled on a 5000-lb. tank which we use as a gravity strainer in a way that involves the same principles as the Powell strainer, the only difference being that we substitute another man on the gang for the up-pipe or outside tube. It is the business of this man to keep the honey always near the top of the tank, and to draw it off as fast as it runs in from the extractor. It works very well when it is standing right out in the boiling hot sun, and for the most part our honey now comes in from the out-yards in shape to ship. At first thought this extra man seems to be expensive; but he is not, for the honey must at some time be drawn off, weighed, and the cases nailed up. The one man can do all of this, and

can do it as fast again as he can if the honey is allowed to cool. Therefore the only advantage of a small gravity strainer would be the handiness of hauling it about for out-yard use. How plain it seems now, when I stop and think of all the time and work I have put in on gravity strainers!

In conclusion let me outline our system for the cleaning-up at an outyard, or at the home yard either, for they are all the same as to the way we work them. When we see that there will not be enough honey to run the tank over when it is about half full, the canner draws it off down to the point where the dregs begin to come, and quits. He can then begin hauling home. The next morning, before the bees begin to fly, the tank is skimmed and the rest of the honey is ready to draw off.

Just a word about skimmers. If any bee-keeper is using a round vessel to skim honey he should get something square. I use about five inches of the bottom of a 60-lb. honey-can. The skimmer should be wiped practically clean of foam, etc., every time it is taken up or the job will never end.

Mesilla Park, N. M.

HOW A MODEL DISEASE LAW MAY BE INEFFECTIVE.

Legislation in New Zealand Prohibiting Box Hives.

BY STEPHEN ANTHONY.

Mr. Hopkins deserves the highest respect from all New Zealand bee-keepers, and it is not too much to say that the bee-keeping world generally owes him something on account of the most perfect foul-brood law yet framed. In his article, Feb. 15, page 96, please notice that what he says refers to the law, and so he is quite correct. As GLEANINGS has a world-wide circulation, and is read by all sorts and conditions of men, some of those not acquainted with our ways of doing things may easily conclude that New Zealand is nothing short of a bee-man's paradise. To those I would say that there is a great difference between a good law and its being carried out. In the first place, we have only two inspectors for the whole country, where twenty could find enough to do in ridding the country of foul brood, in which it has been soaking, as it were, for many years.

In this (Coromandel) district, of which I speak from personal experience, and in many others, as I hear, no inspection has been attempted, and so boxes and foul brood would show up just as well as in any part of the United States. Many who have transferred their bees to movable frames, using starters only, have the whole thing *en bloc*—so that the arrangement differs little from a box; and most of the hives about here are in that state—just through ignorance, laziness, and want of inspection. Then the bush—and our bush is different from bushes in other places, for we are a semi-tropical country—

is full of bees with plenty of foul brood among them—a sort of perennial source.

Then we have a most peculiar aristocracy in this country, exempt from most laws, such as those regarding noxious weeds, foul brood, sanitary conditions, etc. These Maoris, descendants of the old original conquerors of these islands, whom the whites displaced, are endowed with large tracts of land, upon some small parts of which they live in villages, not troubling much about either hygienic or moral observances. Those lands, as a rule, they do not work, because they can not and they need not. They may not sell them, and they pay neither rates nor taxes on them. The idea is, that these lands should be kept intact in order to provide a permanent income for their descendants. I need not describe conditions any further, as some might think I am trying to rival Baron Münchhausen. I myself am a rack-rented tenant of the Maoris as to part of my lands, and also a neighbor of theirs, and, as a consequence, I know by experience; and the point I want to make is that such a state of things can not but be a perennial source of foul brood, both from the neglected bush and from the semi-barbarous man living just as he likes, practically, in the midst of a civilized community. Lastly, we have only one variety of foul brood as yet—the American.

Waitete, Amodeo Bay, Auckland, N. Z.

Pure Italians the Worst Robbers.

Last night, July 27, I took six empty crates from a colony of bees that had been cleaning them out; and as there were lots of bees clinging to the sides I left them on the ground until early this morning. I have 55 colonies in my home apiary, and in four of them are pure queens put in last year. I found these crates full of robbers, and I piled them up and floured the bees, and then watched to see where they went. No floured bees went in the colony that had the crates removed. The black bees, in almost the entire apiary, were very still, and in just one did a floured bee enter; and one pure swarm with an Italian queen was not robbing; but the other Italian colony was piling in, white with flour. One of two other Italians was robbing badly, and a half-hybrid colony had also been robbing. The results are as follows: In 45 black colonies, one bee in one swarm to prove robbing. In 6 hybrid colonies, one colony was robbing. In 4 pure colonies, two were robbing badly. The colonies that were robbing built up in the spring. The yellow bees are hunting every nook and corner, trying to rob, and black bees are noticeable.

Marshall, Mich.

G. F. PEASE.

Why the Bees Clustered Out.

I had a large swarm of bees come out five weeks ago. For the last two weeks or so they have clustered on the outside of the hive on a hot or cool day. Is it because they have not enough ventilation? The hive is full, and I have taken out about 10 lbs. of honey. What is the reason they hang on the hive in large numbers?

Dayton, Wash., July 8.

W. G. GIETZEN.

[From all the conditions named, it is our opinion that your bees do not have sufficient ventilation. A newly hived swarm needs more ventilation than a colony that is busily at work building comb. When the weather is very warm, in the case of a large swarm it is advisable to lift the hive off the hive-body and place four one-inch blocks or seven-eighths blocks under each corner. Let the hive stand thus during the hot weather or during that time of the year when bees seem disposed to cluster outside.—Ed.]

Heads of Grain from Different Fields

Bee-keeping in Colorado; the Number of Colonies that May be Kept in One Locality.

1. In what is considered a good bee country (Colorado), in a good alfalfa district, what would be a conservative estimate, taking one year, with another, as to the amount of surplus comb honey a colony of bees should produce?

2. How many more pounds of extracted than of comb honey may be figured on?

3. How many acres of alfalfa should be figured on to pasture one colony when there are from two to four cuttings a year, counting that there was no other forage?

4. Would there necessarily be a limit to the number of colonies in one yard where there is sufficient forage in a radius of $1\frac{1}{2}$ or 2 miles? I have been told that 100 colonies in one yard is the maximum for best results in any country, regardless of the amount of pasturage, and no other bees in the neighborhood. I can not see any reason for this if they get the same attention.

5. In taking a neighbor's bees on shares, when the renter takes the bees from winter quarters in the spring, does all the work, allows but one swarm from a colony, furnishes all the hives and tools, and every thing except the articles that hold the surplus that belongs to the owner, such as sections and foundation, or cans for extracted, the renter taking all the increase of bees (first swarms), all after-swarms to be returned to original stock or united for the owner, and all original stock belonging to the owner returned at the end of the season, ready for winter in winter quarters, what part of the honey should the renter get, counting the honey both from the original colony and the swarm, not counting the honey in the brood-chamber of the swarm, supposing the swarm to be put in a new hive with foundation, or not more than one frame of brood from original stock to the swarm at the time the swarm issues? How should the surplus honey from the original colony and swarm be divided to make a square deal?

6. Can you tell me of any especially favorable location for bees in Colorado?

7. Would you think that 200 colonies in two yards about four miles apart would be more than one man could attend to by putting in his whole time, counting on help during swarming time only?

Enid, Okla.

C. W. DILLON.

[1. Practically all the bee territory in Colorado is confined to those areas where alfalfa is grown. There are some places where the Rocky Mountain bee-plant and sweet clover grow on the mesas and the mountain-sides. There are also some other places where considerable fruit is grown. In these places fruit-bloom honey is produced early in the season in some quantities. But most of the available locations for bees are taken up by bee-keepers—that is to say, the country is very much overstocked throughout most of the alfalfa district. But we understand that some new territory is soon to be opened up by irrigation, and we would suggest that you write to the Secretary of Agriculture, Washington, D. C., and find out what places there will be in Colorado or any other State if you would consider going to any other locality where alfalfa would be grown in considerable quantity. We would then advise you to make application, and locate your yard as soon as possible, before any one else gets there, because it is getting to be a sort of unwritten law that the first bee-man on the field has a prior right to the territory. But, unfortunately, in many cases we find there are too many bee-keepers and too many bees for the locality, even in spite of the "unwritten law." We don't know what the average is in Colorado—probably not to exceed 50 lbs. Years ago, before there was so much overstocking, it was nearer 100 lbs.

2. This is a hard question to answer. Some bee-keepers figure only 10 per cent more; but the average usually figure anywhere from 33 to 50 per cent more. A good deal depends on the bee-keeper and the locality. Some places are better adapted for producing extracted than comb.

4. Yes, generally speaking there would be need of a limit to the number of colonies in any one locality. Where there are large areas of alfalfa to be grown, you can probably put more than 100 colonies to the radius of a mile and a half. But in that case we would not advise putting all the bees in

one place. Put them at least half a mile, or, better still, three-quarters of a mile apart. By being thus divided in the two locations you might be able to put in 200 and possibly 300 colonies. But the average alfalfa district would probably not support much over 150 colonies to the $1\frac{1}{2}$ -mile radius, because alfalfa is not grown in all of the territory. No, 100 colonies is not a maximum for all localities. We know of places in the United States where 500 colonies or even a larger number can be supported in one location. The largest number we know of is in the buckwheat district of New York—one locality in particular where there are something like 800 or 900 colonies all in one yard. Another place is in California, where as many as 500 are kept; and we presume there are locations in Colorado where possibly 200 or 300 might be handled very profitably; but as a rule, that number for a $1\frac{1}{2}$ -mile radius very greatly overstocks the territory.

5. We do not know that we can answer your question exactly as you have put it; but we may say in a general way that the owner of the bees usually furnishes all the supplies and every thing that is required in the way of building, utensils, machinery, and general equipment at his own expense. The other party furnishes all the labor, and each party shares equally in the crop of honey, and equally in the cost of shipping-cases, sections, honey-bottles, cans, and any other containers that may be used for honey. You will find a contract something along these lines, covering every phase of the matter, given under the head of "Bees on Shares" in our A B C and X Y Z of Bee Culture.

6. We can not answer this question any more than we have indicated in the other replies.

7. You can easily put 200 in a range of four miles as you suggest, and we see no reason why one man could not easily take care of that many. Indeed, he ought to be able to handle a much larger number.—Ed.]

A Queen-sieve Made of an Extra Bottom-board.

I notice in *Siftings*, p. 419, July 15, comments on making a bee-sieve for finding queens. My method may be described in bee-books, and it may have its faults, but it works very well for me. It is quick and sure, and the sieve is easy to make. Place a wood-zinc excluder on the small entrance side of an extra bottom, and exchange with the hive-bottom. Lift the frames out carefully so that the queen may not drop off, and shake lightly in front. Of course, if you see her on one of the first frames, or running in at the front, it is unnecessary to continue. She is ready for you on the lower side of the excluder, with a few workers near her. Proceed by slipping the excluder and bottom forward, replacing the hive-bottom board. A little smoke clears away any bees on the upper side of the excluder, and the queen and drones, if any, are where you want them. In the spring the bees are up on the frames in from five to ten minutes. If they are inclined to be lazy, a little smoke expedites matters.

Galena, Kan.

J. P. BRUMFIELD.

Queens Laid More than One Egg in a Cell.

Last year I bought two queens, and was well pleased with them. They went into the cellar in fine condition, but both colonies were troubled with dysentery before spring. They didn't seem to be building up as fast as they should, so I examined them thoroughly, and found a queer state of affairs. One queen was laying from two to six and even eight eggs in a cell. I caught her and placed her on some comb under a glass and watched her. Then I killed her.

The other is not so bad, but she lays two eggs in a good many cells, and occasionally three. The young bees appear to be all right. Do you think it will do to try to raise another queen from her eggs? I have just one colony now, as I united them. Did the dysentery cause the trouble?

Edinburg, N. D., June 1. MRS. M. S. TROUSLIN.

[Queens that begin laying regularly—that is, one egg in a cell—do not ordinarily begin at a later date to lay irregularly unless the conditions of the brood-chamber are such that they have not enough room. Possibly your brood-chambers were clogged with honey. In other words, the bees may have started to store honey in the brood-combs; and as fast as the brood hatched they filled the cells with honey

until the queens were cramped for room. Under these circumstances a queen may lay more than one egg in a cell. We do not believe that the fact that the colonies had dysentery through the winter had much to do with the behavior of the queens, although poor queens might have such weak colonies that they would readily succumb to dysentery.

Perhaps it would be all right to raise queens from these eggs; but at the same time we should dislike to breed from a queen that was not normal in all respects. But if the queen were merely cramped for room, then of course it might be all right to breed from these eggs.—ED.]

Bees and Smoke.

We may never know whether bees inherit a fear of smoke. I doubt it. All adult wild and tame animals fear it because it suggests fire. I think it likely that bees, like quadrupeds and babies, must learn by experience, though to my mind it is sufficient explanation that the smoke causes the air-passages to smart, and even suffocates. I think it wise to blow smoke into the entrance of a hive, because the bees smell it, and, fearing it, begin to gorge themselves. However, it is not for the bees in the hive that I blow smoke in at the *lower* entrance, but for the benefit of the field bees, which, returning partly laden, or, possibly, wholly so, will attack a person ferociously; but if they go into the hive they will generally be as docile as those which were there when the smoke was first blown in. I use smoke to drive the bees back, just as others do.

I have found that an odorless smoke, like the vapors of nascent ammonium muriate, will not affect the bees at all, if free from ammonia or acid fumes; but a perfectly colorless atmosphere charged with the vapors of "liquid smoke," which is used to cure meat, will make them uneasy, and some of them will begin eating. This is conclusive evidence to me that the odor of smoke is all that is necessary to keep the bees quiet unless they are particularly ugly, when sometimes no amount of smoke will subdue them.

Buck Grove, Ia.

A. F. BONNEY.

Keeping the Tops of the Hives Warm in Winter.

Perhaps it may be of some interest to the bee-keeping fraternity to state how I care for my bees during the winter. Late in the summer, when the honey-flow is over, I examine each colony carefully and make sure it has ample stores for winter, and also that it has a good vigorous queen. If the queen is of the current season's rearing, all the better. Having satisfied myself that the colony is in good condition I place a half-depth super over the brood-chamber and let the bees seal it down tight. As there is always an abundance of propolis in the fall, this is soon accomplished. I then place directly over the brood-frames several thicknesses of woolen cloths (preferably old blankets), and then fill up the super with old rags, dry leaves, grass, etc., and, last of all, about a half-inch layer of newspapers. I then put on the cover; and if the weather should become cold I wrap several thicknesses of newspapers or carpet around the entire hive. The entrances measure about 5 inches by ½ inch. My hives face the north. While others have lost three out of four colonies, I have never lost one packed in this manner. I aim to have the *tops* of the hives as warm as possible, not paying much attention to the sides; and I think most bee-keepers will agree with me in believing that this is the true principle of successful wintering.

HOW TO SEPARATE SUPERS THAT ARE STUCK FAST WITH BURR-COMBS.

It often happens that bees build brace-combs between the different supers on the hives; and to separate them is naturally a sticky and disagreeable job, to say nothing of the disturbance to the bees by prying them apart and cutting the brace-combs as best one can. I proceed as follows: I drive a small wedge at each corner of one side of the hive, leaving a gap of about a sixteenth of an inch or a trifle more. I then take a piece of fine wire, such as is used to wire brood-frames, and draw it back and forth—in other words, seesaw it to the other side of the hive. Every burr-comb will thus be cut in two, and the bees will hardly show they have been disturbed. By this method there is no jarring of the hive, and no disturbance; and what is often a disagreeable task becomes a trifling one.

Cincinnati, O.

ALBIN PLATZ.

Queen-excluders Under Supers.

Would you advise using excluders to keep the queen from laying in the supers? How soon do the young queens hatch after the swarm issues? Belleville, Pa.

YODER BROS.

[In the production of comb honey it is not customary to use queen-excluders to keep the queen in the brood-chamber; but when running for extracted, excluders are very often used. In fact, we may say that most of our best bee-keepers think it economy to put on excluders so that the upper story of the hive will be free from brood, and, to a great extent, of pollen. For further particulars on this subject you are referred to the subject of "Drones and Extracted honey" in our A B C and X Y Z of Bee Culture. The young queens usually hatch from the cells about the day that the swarm is cast. Sometimes they come out a day ahead, and sometimes not for two or three days.—ED.]

Will the Spraying of Cotton with Paris Green Cause Trouble to Bees or Their Owner?

We have the army-worms eating up our cotton-leaves, and a friend about 1½ miles from me is poisoning his cotton with Paris green. I want to know if the bees could get any of this poison without killing them, and store it in the supers so that it would be dangerous for us to eat. There is much cotton nearer than this friend's.

Cliftonville, Miss.

B. G. PATTY.

[We do not think the spraying of the cotton-plant itself with Paris green would cause any trouble with the bees or their owners unless the cotton were in bloom at the time. If you find any bees dying, we should be pleased to have you report, as we are interested in knowing about this.—ED.]

The Misuse of Copper Vessels for Making Syrup.

Referring to the Straw on p. 336, in which a case of bee-poisoning is noted after feeding syrup prepared in a copper vessel, I beg to venture the opinion that the trouble was caused by the misuse instead of the use of such a vessel. A clean copper vessel is all right; but one in which verdigris (basic acetate of copper) has been allowed to form is very dangerous, as this substance is highly poisonous.

Wilmington, N. C., July 14.

F. L. HUGGINS.

[As Mr. Huggins is superintendent of The Cape Fear Chemical Co. he can speak with some authority. He is undoubtedly right.—ED.]

How Much Stores does a Colony Consume in a Year?

About what amount of honey will an average colony of bees consume during the year? I do not remember seeing this mentioned in any of the bee-books.

Lexington, Ind., July 27.

L. E. MACE.

[It was estimated some years ago, that, during the entire year, an average colony would consume about 200 lbs. of stores during the 12 months. This estimate was based on the northern tier of States, where the winters are cold. If the colony would yield a surplus of, say, 50 lbs., it would have to gather 250 lbs.—ED.]

Proof that Bees Can Not Puncture Fruit.

"Do bees puncture fruit?" Well, I say not, so far as my experience goes. I have driven through a half-cleared swamp to-day, and saw great quantities of what we call wild balsam, with a profuse yellow flower, and bees just roaring on it. I stopped to take notes. This plant has the trick of bursting its seed-pod when one puts his finger on it. Well, I failed to see a single bee try to crawl into the blossom; but every one would go to the front of the blossom, and smell; and if it contained honey the bee would fly to the other end and lick it out, provided the blossom had been already punctured. If not, it would leave at once and hunt a blossom that smelled of honey from the front, then wheel to the other end. This flower is very tender, and perhaps three-fifths of the blossoms had already been cut at the base by some other insect; so we see that bees do not hunt honey with their teeth, but with the tongue, which is provided for the purpose.

Hosierworth, Ont.

CHARLES MITCHELL.

Notes of Travel

A. I. Root

Dear friends, the story I am going to tell you now will include bee culture, high-pressure gardening, poultry, and God's gifts in general; and very likely some of the friends will complain that I am once more giving quite a little free advertising. But I hope you will not object when I tell you that I expect to do a lot of free advertising for things that are good and honest, wherever I find them sufficiently meritorious. Of course, I may make mistakes, and I may also lack in judgment at times; but I am going to do the best I can for all humanity.

On the afternoon of July 31 I started on my trip, and on the following day I found myself in the great city of Philadelphia, where my good friend W. A. Selser had been waiting for me for *three hours*, as the train was that much late. As we had lost so much time I pressed my good and able friend into service; told him he was to do my bidding, and The A. I. Root Co. would pay all expenses incurred. As I had already missed my train, to meet an appointment we were glad to call to our aid telephones, telegraphs, electric and steam railways, and automobiles.

As we went away down into Southern New Jersey I was greatly surprised to find so near the great city of Philadelphia miles and miles of a sort of barren waste that looked very much like certain portions of Florida. And there is *another* thing besides the *landscape* that made it look like Florida. Every little while we saw a sort of oasis where somebody had built some kind of cottage and tried to make a garden, but had evidently gone back, discouraged, and left the land to go back to primitive wilderness. Friend Selser said speculators sold this poor land to unsuspecting and innocent hard-working men, and that was the result. Of course there were towns occasionally where improvements had been made; and as we approached Cape May we saw better soil and beautiful farms, both for fruit and garden crops.

My first destination was to see the great blackberries I have before mentioned at Fishing Creek, N. J. This blackberry was brought a few years ago from Brazil; but the man who took pains to bring a root of it to this country died soon after, and it was allowed to run wild until friend W. L. Ewing got hold of it. Briefly, this blackberry grows like a grapevine, and covers a trellis; and it was my privilege to reach up overhead and pick the largest and most luscious blackberries I ever tasted. They are later than the ordinary blackberry, and do not begin ripening until about the first of August. After that they keep on ripening until frost. I saw single canes over 20 feet long, and I was told they had grown much longer than that. It was also stated that between one and two *bushels* of berries had grown from a single plant. I had somehow

obtained the impression that it was from a single *vine*; but as it stools out like any other blackberry, one hill may in time produce half a dozen or more great strong canes, and, if I am correct, it is the hill that gives more than a bushel of berries. The canes grow the first season, and the next one they bear fruit. The third year they die down, and will have to be cut out. Friend Ewing has them all trained on something like a grapevine-trellis. I think about three wires on posts perhaps five feet high hold the canes up so that the sun and air can get all around the fruit. The vines and foliage very much resemble the Northey berry that we have down in Florida that I have already very fully described; but it bears a *black* berry instead of a red or crimson one, and it is a very much larger berry. They grow in great clusters, the berries all touching each other, making sometimes a great heavy mass of berries. The question arises, of course, "Will this berry give any thing like the same results in other soils that it does on that Jersey ground?" and this is yet to be determined. Friend Ewing says he has not had much success with commercial fertilizers nor even barnyard manures; but constant cultivation with a dust mulch all around the plants seems to be their best treatment. Four of the plants are now growing in our own garden here in Medina. Of course the plant is a rank and rapid grower or it could not make such a length of cane in a single season.

At the time of my visit there was a gathering of prominent men interested in fruit-growing and agriculture. Your humble servant was soon asked to give a little talk. By the way, the only way friend Selser could reach the meeting before its close was to press into service an automobile from the station. So, almost before I knew it, I was whirled along in the auto and then called to the speaker's stand. As I did not know my audience I feared I was getting in almost too much of the name of the great Master whom I love. Well, I soon gathered from the faces of the women present, as well as the rest of the audience, that my exhortations were not ill-timed; and the remarks of the chairman near by intimated that *he*, at least (for he was the pastor of their church), was pleased to have such a talk before his people in regard to God's great and wonderful gifts.

As we had a train to meet, I was obliged to leave before the meeting closed; but before coming away in the auto we sampled the blackberries again. There was about a third of an acre of old plants in heavy bearing. Then there was about half an acre of plants set out two years before. This bears equally fine berries, but not so many of them, as they do not make such an extended growth. Every little shoot is loaded with berries. In fact, some of the berries

were clear down in the dirt. I might be tempted to call it a dewberry were it not for the size of the canes, some of them almost as large as a hoe-handle, and the fact that they bear equally well when carried on a trellis clear over one's head.

The next point of interest was Glassboro, N. J. Here we found an orchard of apple-trees covering something like 400 acres. It belonged to the Repp Brothers—John, Charles, and Albert. We were taken through the orchard in a fine up-to-date automobile; and our host remarked that if we could find a wormy apple, on the whole 400 acres he would be glad to see it. We did not find one. If I remember correctly they spray their trees five times every year; but before they got entirely rid of the codling moth this thorough spraying had to be kept up three or four years. I have recently mentioned a single apple-tree in Northern Michigan, from which the fruit was sold in one season for \$60.00. Friend Repp pointed to a whole row of apple-trees, and said he had good reason to believe that he would get at least \$50.00 a tree for every tree in the row. The early apples were being gathered while we were there. They are gathered, handled, and sorted with as much care as are the oranges in California and Florida. One of the brothers is constantly stationed in Philadelphia during the gathering season to dispose of the fruit to the best advantage; then a fine cold-storage plant for placing winter apples as soon as gathered has been made; and a very complete and up-to-date apparatus, for spraying by means of a gasoline-engine mounted on a heavy truck, is used. The ground is plowed in the spring, and given thorough cultivation until the first of July, when all cultivation ceases, and weeds are allowed to grow to their hearts' content. When I suggested sandy vetch or some other legume instead of weeds, friend Repp said that, like the poor, weeds are "always with us," or almost always; and he said that, with their vast extent of orchards, it would be a great deal of trouble to put in a crop of any thing, compared with weeds, which can take care of themselves. Of course, the trees are carefully propped up to prevent the limbs from breaking. I saw only one tree where the limbs were breaking down, and I think this was because the props were not sufficiently strong. They make their props out of old rails, for every fence that was originally on the farm has been taken away. Said I, "Mr. Repp, do you grow only apples and pears? are you devoting your time to no other fruit?"

"Why, yes, Mr. Root; we have a few peaches, but only about forty acres. Perhaps you would like to see our peach-orchard."

Then the auto whirled us over there, turning corners and dodging obstacles at such a rate that I was forced to admire friend Repp's remarkable skill with the auto. With the fifty hands employed, or such a matter, it is really his "right-hand man." As we approached the peach-orchard and saw the

beautiful red Carmans just ripening all about us, he turned to us and said, "Now, friends, we have in this orchard fifty-seven varieties of peaches."

"Fifty-seven varieties?" I said in astonishment. But just then friend Selser began to laugh, as he had caught on about the pickle-man of Pittsburg. Then I continued: "Why, you surely did not *plant* fifty-seven varieties in this beautiful orchard?"

"No, Mr. Root. We planted only one variety—at least we *thought* we did; but the fifty-seven got in when we found them bearing."

Of course, there were not *exactly* fifty-seven. He found, as most of us who grow peaches do, that they were not all true to name. Said I:

"Mr. Repp, do you know of any nursery-man on the face of the earth who will furnish you 100 or 1000 trees, and guarantee to have every one true to name?"

He replied, "No, Mr. Root, I do not. Of course, they will *replace* those not true, but what does that amount to?"

Here, friends, is in object-lesson. Instead of trying to do all sorts of farming, as so many of us do, this man, or, rather, these three bright men, confine their attention almost solely to apples. They not only grow *more* apples, but better ones, than the world has ever seen before, especially in the Eastern States; and by confining their attention to apples, and having all appliances and machinery up to date for their especial crop, they outstrip a world of people who try to do a little of every thing. Their principal fertilizer—in fact, almost their only one—is basic slag and potash. The slag is put on and around the tree first, and the potash afterward. They have had experts, soil chemists, to help them choose the best fertilizer for their business.

On our way to the station our good friend pointed out to us a great hotel, an immense structure in which they had recently toward a hundred guests at prices ranging from \$2.00 to \$4.00 a day. Now listen while I tell you why this great hotel, *right in the height of the season*, is vacant and idle. Where they make these big prices from millionaires, they of course have a bar and sell liquors. Well, the Repp Brothers, with other good business men in the place, formed a civic reform committee, and decided that they would have the law enforced. They got a good honest detective (thank God there are a few such in our land). This one was a minister of the gospel, who evidently decided that the Devil would have to be fought on his own ground and with his own weapons. He succeeded in getting such evidence that the proprietors of the hotel faced not only heavy fines but imprisonment. They got mad; and, thinking to spite the law-and-order-loving people of Glassboro, they declared that, if the law was enforced, they would dismiss their guests and lock up the hotel. "All right," said the civic reform committee. "Shut it up and turn your guests away."

Of course, it took a lot of money out of the town, and stopped a lot of business; but the Christian and temperance-loving people said, "All right; we are going to have our laws enforced, even if we *do not* have quite so much money."

Our good friend said he was not a member of the Anti-saloon League, nor, I think, of the Prohibition party; but he believed in enforcing the laws, and they went at it, and did enforce them in spite of the whisky gang. God speed the day when our common hard-working people—men of influence and men of means—shall rise up in their might and stand up for the principles of the stars and stripes.

With a speed of about a mile a minute, and sometimes a little more, we were back again in that busy humming city of Philadelphia. A bright little girl, Mr. Selser's stenographer, met us when we stepped off the train, hurriedly took down some dictation, ran errands (yes, stenographers in Philadelphia and New York both run errands, and I tell you they are expert at the business too), and friend Selser then said we had 15 minutes to get dinner before taking our next train. He suggested a roast-beef sandwich with some mashed potatoes. Let me say right here that may be I am telling a good many people something they know all about but which I didn't. But I am sure there are many others who are as unacquainted with the great cities as I am; and it was one of my happy surprises to find that that roast-beef sandwich was a great plateful of large slices of nice bread soaked in rich dark gravy with good slices of about the nicest roast beef I ever ate. It was so tender that we made out a good meal in fifteen minutes, caught our train, and hied away to the Corning egg-farm at Bound Brook, N. J. As we stepped from the car I was pleased to see a neat little sign at the entrance gate announcing "No visitors received on Sunday; but we shall be glad to welcome you other days and show you around between 8 and 12 A.M. and 2 and 5 P.M."

As we came up to the door of the office a jolly-looking gentleman rose up and said pleasantly, "Well, gentlemen, how can I serve you?" When I was introduced I was pleased to hear him say he had read some of my talks, and would be very glad to show me around. As most of the chicken folks have read the Corning egg-book I need not go over it here; but I saw there right under my own eyes a demonstration of about all there is in the book. Six thousand chickens, all about one size, were in a long building that separated them into flocks of about fifty each. They could run out into their respective yards or come inside, just as they chose; but during that hot summer day they seemed busy in scratching in the litter inside. The laying hens, 450 in a similar house, also seemed to be busy, and well and happy. This house, however, provides them all they need in the way of grit, green food, animal food, etc. The green food they

mostly prefer is sprouted oats. One basement was full of oats sprouted green in different stages. During the severe hot weather, Mr. Corning said, they had better success in sprouting the grain in a damp shady basement instead of having it out in the open sun. He remarked that, although the chickens would eat oats a foot high or more, they had decided from their experiments that there is more nutriment when the sprouts are only about a quarter of an inch long. He said that at this stage we have the full benefit of the grain with the additional value of green food.

A yard of pullets one-half or two-thirds grown were in colony houses out in the lot. These colony houses are about such as I have described; but they are on runners so as to be movable; and he has decided, like myself, that every chicken will have to be shut up in a secure rat-proof house every night, and let out every morning at day-break. Their foreman is one of the chaps like myself who like to get up early.

When I asked if the handsome White Leghorn chickens scattered over the fields all went back to their respective houses at night instead of piling all into one or more houses he remarked, "Why, Mr. Root, most of them find their homes without any trouble; but there are a few nearsighted ones; and about roosting-time you will see them getting up in front of the house and looking at these large black figures. You see they are over a foot long, and they almost always make out their number. We have thought of getting some spectacles for a few of them that are *badly* nearsighted, but we have not got around to it yet."

When we came to discussing poultry remedies he said they had very few diseases of any kind. He remarked that some of the poultry remedies are doubtless good—for instance, the roup cure that is advertised at 50 cts. or \$1.00 a bottle. He held up a bottle marked "permanganate of potash" and said, "This, Mr. Root, is a staple remedy for roup—the principal drug in all their roup remedies, and even for other ailments. But five cents' worth of permanganate will go further than a fifty-cent package of the roup cure. Go to the drugstore when you want it, and mix it yourself."

When I asked about the three or four bloodhounds that were chained near the office he said they were let out to protect the premises at night; and they not only kept away all sorts of vermin but suspicious characters of the human family. When I asked about the laying, he gave the per cent of eggs from certain houses. For instance, a pen of 450, where some of them were just beginning to moult, was then giving about 30 per cent—that is, 30 eggs for every 100 hens, and he said something like this: In December it would run something as it then did. In January they would come up to 40 per cent; February, 50 per cent; March, 60 per cent; and in April, perhaps 70 or 75; and about the same in May.

Their eggs are marketed the day they are

laid, and they get extra prices by having every egg not only strictly fresh but first class in every respect. They have a reputation in the cities of New York and Philadelphia, and they work hard to keep up that reputation. They do not use fireless brooders. He said that a little gentle heat for the first two or three weeks is so much of a help in getting strong and sturdy chicks that they prefer it; but just as soon as the chicks can be persuaded to get up on their little perches, especially in summer, they are encouraged to do so. Of course, all heat is cut off at such a time. They have been using the Prairie State incubator; but every one in a long room full has been sold, and they are installing a "Candee" mammoth incubator, as they became satisfied that the big machines taking over a thousand eggs at a time give more and better chicks with very much less labor to control. He added, however, that if he were in Florida, as we are in

the winter time, he probably would use fireless brooders without heat; although he suggested that a little heat would save a lot of trouble in enabling the chicks to find the hover. When I suggested a sitting hen put into a barrel laid on its side for 40, 60, or even 75 chicks, he said most emphatically, "Mr. Root, if you can have a sitting hen at just the time you want her, your barrel arrangement would be just the thing—perhaps the best thing in the world;" and I am going to try hard to have some sitting hens ready whenever my chicks hatch.

One thing more. Mr. Corning said he would never use eggs for hatching chickens until the mother is fully a year old, or at least until she has been laying long enough as a pullet to be fully developed, and laying good-sized fertile eggs strongly fertile. Of course, the small eggs that the pullet lays at first will hatch chickens, but not good strong healthy ones such as we all want.

Our Homes

A. I. Root

If thou turn away thy foot from the sabbath, from doing thy pleasure on my holy day, and call the sabbath a delight, the holy of the Lord, honorable, and shalt honor him, not doing thine own ways, nor finding thine own pleasure, nor speaking thine own words, then thou shalt delight thyself in the Lord; and I will cause thee to ride upon the high places of the earth, and feed thee with the heritage of Jacob thy father: for the mouth of the Lord hath spoken it.—ISAIAH 58:13, 14.

When I started off on my eastern trip I told our people I could make my several points and get home by Saturday night sure. But Saturday morning, when I began to inquire of my friends about my route home, I found I could just about make it without encroaching on the sabbath if I did not make any more stops; and with so much traveling, being rushed from one point to another, I was feeling pretty well tired out, and I do not know but I was a little homesick. In fact, I felt a strong disposition to cut short my visits and rush straight home. I found, too, that my best route would take me through Troy, N. Y., and I recalled that a niece who resided there, with whom I had been most intimately acquainted in her childhood and babyhood, had complained that I had never made her a visit. In thinking the matter over I wondered whether I should follow inclination rather than duty, or, if you choose, do what I *wanted* to do rather than what I *ought* to do. I finally knelt down and resolved to "take it to the Lord in prayer." While asking for divine guidance I recognized that I might have to travel on the trolley cars perhaps on Sunday morning in order to get home. The answer came remarkably sharp and clear, "Spend the sabbath with the niece whom you have neglected so long." In fact, it was a sort of feeling that the great Father had some *work* for me to do on that special sabbath if I were ready and willing to do his bidding.

At exactly 6 o'clock P.M., I was at the Troy station; but as I had not planned to call on my relative I had no idea where to find her. There were several obstacles in the way. The stores and business places were pretty much all closed. Of course, I could consult the directories; but I am too deaf to hear the average talk through the telephone; and I did not know a soul in that whole great city. My niece was a widow. I knew her husband, before his death, was engaged in the shirt and collar business; and after spending what little time I had in going from point to point with a heavy valise, I approached such a place of business. It was shut up like all the rest. A little girl sat on the doorstep. She kindly gave me a little encouragement; and when a gentleman came along who looked as if he might be willing to help a stranger, I appealed to him. We consulted the city directory; but there was a long string of Gardners, and *two* that had recently died; but no street or number (as they were *dead*) was given these. He suggested he knew a man connected with an insurance company, named Gardner, and we went up there. But their place was closed also. At this stage I asked the population of Troy, and was told that it was about seventy-five thousand.

"Seventy-five thousand! why, my dear sir, it is like finding a needle in a haystack. I can not think of bothering you any further. I think I will take the next train, and go on and give it up."

He smiled pleasantly and replied, "Oh, no! Since we have got started we are going to *find* our man, or *woman*."

Now, as soon as I decided in my own mind that I would give up the quest (as I thought I could not find her any way), it brought on a feeling of darkness—that is, my spiritual-

ity seemed darkened; but his cheering words brought life and hope again, and I began (mentally) breathing my little prayer "Lord, help." We went into a florist's, next door. The proprietor called through the phone for the head of the insurance firm, and for a Chas. Gardner whose mother was a widow. But there were *two* men by that name, and their mothers were *both* widows. One of them *happened* to be at the place, and pretty soon we were making headway. Finally this good Samaritan whom I have mentioned said through the phone,

"Do you know a party from Ohio whose name is Root?"

"Yes."

"He wants to see your mother."

The reply came at once, "My mother is right *here*, and will be exceedingly glad to see Mr. Root."^{*}

Then this new-found friend hunted up the right car, told the conductor where to put me off, and in a short time I saw my niece in the distance, coming to meet me. After we had talked over old times, and I was beginning to feel *at home* and happy, she said, "O Mr. Root! there is one of the nicest young men that I know of, a friend of mine, who is just getting interested in bee culture, and he has already expressed a wish to see you if you ever come this way. He lives only a little way off, and I will call him over the phone."

I shall always remember that Saturday evening. The young man mentioned is a bright keen young fellow, perhaps not quite half my age; but he and I became friends at once. We talked until after 10 o'clock, and even then did not get through.

The next morning I found that, to get to a Congregational church, I would have to ride several miles in a trolley car. Now, I have all my life studiously avoided any sort of travel that obliges my fellow-man to work on Sunday, and I asked if there was not some church near by where I could easily go on foot. There was a Methodist church within two or three squares. The minister was of foreign birth, and his language was somewhat broken; but his sermon came home to me with wonderful power, and I was glad in my heart that it was a Methodist church, so my "amens" would not be out of place. At the conclusion he asked me where I lived, what church I belonged to, etc. I replied, "My good friend, at my home in Medina I am a Congregationalist. In Florida, where I spend my winters, there is no church of our denomination, so I am a *Presbyterian* in the winter time; and to-day, as there was no other church handy without

riding on the cars, I found myself in a Methodist church. In fact, I am happy in being a Methodist for to-day, if you good people will accept me."

In his large Bible-class, after the sermon, he introduced me to a lot of bright devoted men; and I am going to tell you something about *that* Bible-class in another number of these Home papers.

After hearing that good minister preach again Sunday evening, my new-found friend came over and asked permission to have a further chat with me. I found he was not a member of any church; and as it was Sunday evening I gave him a few points in my eventful life, especially telling him how our business had been built up, and how bee culture had prospered in answer to my prayers. He was very much impressed. He said my plain and practical talks had given him a new glimpse of the gospel of Jesus Christ. Next morning he was on hand to welcome me, bright and early, at their place of business; and, by the way, I am pleased to tell you that one reason *why* he was so much interested in bees was that their great seedstore had just become a representative of The A. I. Root Co.'s goods, in connection with their seed and poultry trade. Well, almost his first words were something like this:

"Mr. Root, after thinking over what you told me last night I am impressed with this—there is great danger that people who read your Home talks on this matter will never comprehend that God placed you and singled you out, *because* you did not start out to *make money*. If I understand you, your undertaking was to save souls, and God honored you, and answered your prayers because he saw that he could do so safely."

The above is right and correct. A young man in my Sunday-school class once confessed to me that he had stopped praying because it did not seem to do any good. I asked him *what* he had prayed for, and the reply was, "For an advance in salary!"

In bidding good-by to my new-found friend as he placed me on the proper car to reach my next point, I said to him, "Friend G., can you not give me the same promise that George E. Hilton gave me when I left him after that half-hour's talk?" (see page 475, Aug. 1.)

He replied something like this:

"Mr. Root this is too serious a matter for me to decide on hastily. I want to think it over. I will, however, promise you this: that hereafter I will *try* to make your little prayer, 'Lord, help, my prayer.'"

Now, friends, had I listened to that selfish feeling—well, you may say homesick feeling—and missed stopping at Troy, that whole bright sabbath day would never have dawned on my life. I spent something like an hour that Monday morning with my young friend in looking over their vast seedstore. They have the largest stock of poultry implements—in fact, "every thing for poultry," that I think I ever saw before. There was no end of our discussion in regard

^{*}At this juncture, to tell the truth, I uttered aloud "May the Lord be praised." I explained to them that I at first feared it was impossible to find my relative at that time in such a large city, and that I was greatly rejoiced, and would always remember their kind services. Please notice, I said just above that C. H. Gardner and his mother just *happened* to be at the residence of the insurance man. But, dear friends, I can not begin to tell you of the many kind things that "just happen," at about the time when I become sufficiently discouraged, to remember my little prayer, "Lord, help."

to poultry-appliances as well as various kinds of seeds, novelties, etc. I think I might as well tell you that this firm is the Gordinier Seed House, of Troy, N. Y. The head of the firm is a gray-headed deacon in the church. A few weeks ago they had a fire that damaged a portion of their seeds more or less. Samples were tested at once to see how much injury they had received from the heat. A good many of the seeds were injured but little; and some of the clerks suggested selling some of these injured seeds at a lower price. The old deacon replied something as follows:

"Yes, we have got insurance on our loss; but there is one thing that was *not* insured, and which can not *be* insured."

Some of the younger members began to wonder what it was that the various insurance companies would not cover. There was a great big moral to the old gentleman's reply. It was this:

"The *reputation* of the Gordinier Seed business."

Now, if I had rushed straight home, as I felt like doing, I should have missed *another* wonderful sight that met my view Monday afternoon. It was this:

Our good friend and representative, F. A. Salisbury, of Syracuse, N. Y., met me at the train with his electric automobile, and took me over to see Mr. S. D. House, of Camillus, four or five miles out of the city. Friend House was out in his apiary of 270 colonies of bees, clustered all around his home, and every bee of the 270 colonies was, for the time being, a "busy bee" in good earnest, bringing in *alfalfa honey*. Supers and sections were piled away up, and thousands of pounds of honey was ready to come off. Sections were filled and capped over in a week, and empty supers of sections put on the day before had the cells drawn out and half filled with honey in just 24 hours. I do not think I ever saw honey come in, even in basswood time, as it did on that Monday afternoon. The bees were swarming; and his principal help was a bright little boy ten or twelve years old, a nephew. Just a few days before, I was told that J. E. Crane, of Middlebury, Vt., would have to feed many barrels of sugar to his several hundred colonies because the season was a failure.

Before I got into Syracuse I noticed from the car windows acres and acres of alfalfa. When I expressed an earnest wish to see a field of alfalfa in full bloom, so as to give a honey-yield like that, this small boy piloted us to one of the hills where a whole field was a solid mass of blue alfalfa-blossoms. On the way back we saw another apiary owned by Irving Kinyon, Camillus, N. Y., and there I saw on one stand *five* stories all filled with alfalfa honey from top to bottom. They, too, were so rushed in putting on supers and sections that they found it hard work to give the bees room. On many hives great quantities of bees were hanging out, and even down in the grass, because their hives were absolutely "chock full," with no room to store more honey. When I re-

monstrated they said they were clear out of supers and sections. Pointing to my good friend Salisbury, who was by my side, I said, "Why can't this good brother supply you from his ample storeroom filled with supplies?"

"Yes, that is all true; but this 'good brother,' as you call him, wants 'spot cash' for every article that goes out of that nice storeroom, with its splendid assortment of every thing that a bee-keeper may want."

Of course, that statement was a "huge goak;" and you ought to have heard the big laugh that went up from all around.

Now, this was a revelation to me, and I think also to a great part of the readers of GLEANINGS—that alfalfa will not only succeed splendidly in New York, but that it will, when conditions are all right, give a tremendous flow of honey right in the middle of August, when bee-keepers, as a rule, almost all the world over, are getting little or nothing. Friend House suggested that perhaps a part of the flow was from sweet clover, as we found it all along the roadsides and vacant places, both white and yellow. The yellow, however, seemed smaller, and we did not find as many bees on it. I found some beautiful Red Astrakhan apples at friend House's, so I had my apple supper at about the usual time. When we got over to that hill of alfalfa we found, on coming back, some of the finest Yellow Transparent apples, all ripe and "ready to drop;" so I had another supper of *these* luscious apples.

When we got back to Syracuse, friend Salisbury's housekeeper said "supper was ready." I tried to explain that I did not eat suppers; but when the good woman said she had some nice fresh fish, caught that afternoon, especially for *me*, besides a nice sample of that alfalfa honey I was talking about, I made that evening an exception. You will remember that, when the Savior gave his followers a banquet, it consisted of fish, and "honey in the comb." I thought I ate moderately; but in the middle of the night, in my upper birth in the sleeper, I am afraid I disturbed a lot of passengers by having a terrific nightmare. I had not had an attack of it before then for several months. Having three meals a day, instead of two, was what caused it, without question. Now, friends, just think what I would have missed had I yielded to the temptation to rush home and travel on Sunday more or less.

Just one thing more before this Home paper closes. It was after dark when friend Salisbury took me down to meet my train; and with his beautiful new electric auto we went up and down through the electric-lighted streets of Syracuse. I think I never saw before so many moving electric signs and such myriads of radiating globes. As I began to express wonder, friend Salisbury spoke something like this:

"Mr. Root, can you realize that every blaze of light we see comes from the power of Niagara Falls? Not only that, these rushing cars that dodge so swiftly everywhere through the city, and run away off into the

country for miles and miles, are propelled by the power of that same Niagara. And, to go a little further, this very automobile that has carried you about through the country to-day, and through these beautiful streets to-night, is also impelled by the power of Niagara, for my storage battery is filled from the Niagara current."

Once more may the Lord be praised for what he has done and is doing for his untiring, hard-working children whom he loves.

"SKYROCKET" PERIODICALS, "PROFIT-SHARING," ETC.

We clip the following from a recent issue of the *Ohio Farmer*:

"There are two or three 'skyrocket' publishers of agricultural papers, with an outrageously inflated capitalization, working farmers to take stock in their enterprises. We deem it our duty to say to our subscribers that they will surely be very sorry if they are misled into any of these investments. No standard reliable publications are resorting to such nefarious methods to maintain their business.

We are glad to see that the *Ohio Farmer* gives place to the above warning. When an agricultural paper or any other periodical publicly invites a subscriber to purchase stock in his enterprise, give him a wide berth. A gold-mining enterprise that invites you to go in with it and "get rich," does not, at the present day, get many suckers to bite—or at least I hope not; but when the editor of a respectable magazine, or one that has been considered respectable, talks about the great fortunes to be made in the publishing business, and wants you to go in with him, and share the profits, it is time that such parties be let severely alone by every man and woman of common sense.

Look out for the "gentry" who are after your money; and I would warn you especially to be on the lookout for the institution that has something to sell, and, if you do not answer after, say, ten days or two weeks, will keep making further offers and coming down in their prices. What brought the matter to mind just now is that I answered an advertisement of a "memory" school. As the amount of money they wanted was more than I felt like paying I dropped the matter; but in a few days I had a very pleasant letter (typewritten, of course) saying they felt anxious because they had not heard from me further, and they offered to come down in their price a little. As I gave this second letter no reply, a third letter came a little later, making a still greater reduction in tuition, and saying at the same time, "This will be your last chance to enroll at the old rate before I raise the tuition again." Now, there are a lot of advertisers who are doing business in just this way. They first want about \$25.00, finally they come down to \$10.00, or may be \$5.00; but it does not seem to occur to them that, by their own admission, they are getting a big lot of "other people's money," if they happen to get any kind of "bite." Suppose some one should be so innocent and unsuspecting as to take up with the first offer of \$25.00 when he could have had the same course of lessons

for only \$5.00 if he had hung back properly and acted indifferent about the matter. What do you think of that way of doing business? Here is a single sentence from the letter which I hold in my hand: "A few minutes' practice daily will enable you to accomplish more in a week than a hard-working man can do in a month." That is a big offer, sure; but I think I shall continue saying, "No, thank you."

THE "BREWERS' INDUSTRY (?) " "OFFICIALLY RECOGNIZED" BY THE DEPARTMENT OF AGRICULTURE AT WASHINGTON.

From the *American Advance*, published at Chicago, we learn that the brewers of the United States are to hold an international brewers' congress in Chicago, October 12 to 22; and inasmuch as the brewers from foreign nations are invited to be present, the Hon. James Wilson, Secretary of Agriculture, is not only invited, but has accepted an invitation to act as honorary president for the Congress. Now, we have been told by the papers that Secretary Wilson was back of the movement to oust Dr. Wiley; and it has leaked out in several directions that the liquor people of the United States are back of this attempt to get our United States Chemist out of the way. In view of the above, who is it that should be asked to "step down and out"? Is it possible that Secretary Wilson is so blind or indifferent to what is going on in the way of banishing intoxicants, especially the brewers' product, that he would consent to stand up in the limelight before our great nation as an advocate of the brewing industry? The circular that I refer to as being sent out is dated June 16, 1911. Below is a quotation:

The Secretary of Agriculture of the United States, the Hon. James Wilson, has accepted an invitation to act as honorary president of this Congress, and the United States Department of Agriculture will be represented at the international barley and hop exhibition by a suitable exhibit.

I will also quote from the last page of the *Advance*:

In the July 15th issue of the *Brewer and Maltster*, an official organ of the United States Brewers' Association, is a full-page story entitled "Officially Recognized," and illustrated with a portrait of Secretary Wilson.

We have it from pretty good authority, the forthcoming "President's Message" will once more fail even to touch on the greatest menace to the health and morals of our great nation.

Just now there is a lot of speculation as to who will be our next President; and I for one feel a good deal inclined to say that I will vote for the man who has the grace and courage and principle to come out boldly and declare himself unalterably opposed to the liquor-traffic, even if it does seem to kill his chance for ever becoming President. And if the people of our land—the good hard-working people—could have a chance to vote fairly, I think there is no question but that they would stand with me and demand some one who would do as Lincoln did, and issue an "emancipation proclamation" from the whisky ring.

FROM PRODUCER TO CONSUMER; NOT ONLY
A SHORT CUT BUT ONE AT
SMALL EXPENSE.

Just now nothing in the world can help the average laboring man more than some means of transportation at a low cost that will enable the producer to deal direct with the consumer. As an illustration: I can not at present get my supper right from the apple-tree that grows the apples, because it is the wrong season.* Of course I can *buy* some apples in the large cities at 5 to 10 cts. each; but if we could trace the matter back and see how much the man who grew those apples received for them it would probably be a revelation to us. Well, while I write there are beautiful apples grown in the Southern States, ripe and ready for market; but in many cases a peck of them *there* brings only about as much as a single apple does *here*. When the early apples get to be a drug in the market because they will not keep very long, nice ones are often sold at 10 cts. a peck, while up here in the North we pay 10 cts. for *one* apple. Several friends in the South have kindly offered to send me apples by express; but the express charges would be about the same as by mail—that is, for the small quantity that we could take care of in our own neighborhood. I know the apples are nice, because I have had samples by mail at a cost of 16 cts. per lb.† Of course we can not afford to pay 16 cts. per lb. for the transportation of our daily food.

Now, here is a paper that comes from the center of government in regard to the matter; and even if it is small print, and may look like dry reading, I want every one of you to read it again and *again* until you understand it thoroughly, in order that you may be ready to put your shoulders to the wheel and help to push parcels post that is now up before the people. We shall get it as we got postal savings banks; but we want it quick, before more money is wasted by giving express companies the dollars they do not need, and which do not belong to them. They have robbed us and defrauded us long enough. May God help us in this battle.

The sub-committee on Postoffice and Postroads met to-day and took up for consideration the Lewis bill, which provides for condemning and purchasing the express companies and adding them to the postal system, and establishing a complete system for the quick transport of packages and the eatable products of the farm and truck garden, etc. At their last conference in Washington the representatives of the business men of the country and of the farmers' granges asked Congress to establish such a system, and representatives of these interests were present at the hearing before the committee to-day.

"There are two main reasons why the express companies must be added to the postal system," said Mr. Lewis in his argument. "First, the express-company service does not reach beyond the rail-

ways to the country or the farmers, which the post-office does through the rural free delivery, which is waiting with empty wagons to receive the express packages and take them to the country stores and the farmers, and carry back to the towns and the cities the produce of the farms and truck-gardens for the people to eat at living prices. Second, the contracts of the express companies with the rail-ways give them an average transportation rate of three-quarters of a cent a pound; and with this rate the express charges by post would be reduced from two-thirds to one-half on parcels ranging from 5 to 50 pounds, and about 28 per cent on heavier weights, as a consequence of the coördination of the express-company plants with the postoffice and rural delivery, and the elimination of the express-company profits, which are averaging over 50 per cent on the investment.

The express companies are positive hindrances and obstacles to the business of the country. The average charge for carrying a ton of express in Argentina is \$6.51; and for the countries of Europe, \$4.12, while the average express-company charge in the United States is \$4.26. They charge five times as much to carry a ton of express as a ton of freight in other countries. Here the express companies charge sixteen times as much. Of course these charges simply prohibit, by half or more, the traffic in the United States. Our average is less than one hundred pounds per capita, while that of the other countries is over two hundred pounds per capita, although we have a far greater demand for quick transport on account of our longer distances and more extensive business.

"We can not have an efficient *parcels* post. The Government can not conduct it on mail railway-transportation rates at over four cents a pound, in competition with the express companies paying but three-fourths of a cent a pound, excluding the weight of equipment in both cases, which enables the express corporations to pay over fifty per cent in profits to themselves, although rendering no service whatever to the farmers and to points off the railways."

Mr. Lewis has worked out a system of "zones" based on scientific methods, from which a five-pound package, for instance, can be sent 196 miles for 11 cents, while the express companies now charge 25 cents, and more for like distances: From Calais, Maine, to San Francisco will cost 30 cents for five pounds, and \$2.42 for 50 pounds, as against the express company charges of 85 cents and \$7.50.

With the rural free delivery a part of the express system, an agricultural parcels post will market the farmers' produce and save them the time and labor of marketing their truck. Rates even lower than those quoted are promised, by having the rural and city carriers assemble the small consignments of the individual shippers and utilize the fast freight service on trunk lines with passenger trains on the branch roads to hurry the stuff to destination at the regular fast freight rates. The postoffice will recoup itself by securing carload rates for the assembled shipments, while the small shippers get their advantage over present conditions by having their collect-and-delivery system for practically nothing.

This system is now in vogue in Germany; and shippers, Mr. Lewis shows, pay only double freight rates, less than a tenth of the express rates here.

The food problem, the "high cost of living," according to Mr. Lewis' figures, is largely the result of the want of a proper articulation of our transportation with the rural sources of supply. While prices are often prohibitive to the consumer, crops may be rotting at the place of production for want of a *real* express service.

The committee's hearings will be printed.

"BUCKWHEAT; ALL ABOUT IT; HOW TO
GROW IT; DIFFERENT KINDS."

We have so many kind words, and words of commendation, in regard to our methods of doing business, keeping our patrons posted up to date, etc., that we do not have room to print a tenth part of them. If fact, there are so many of them compared with the kicks and criticisms that the latter are sometimes refreshing. And, by the way, we are

* This article was dictated some time ago.

† By the way, I suppose you all know that I can get apples *cheaper* by mail from Europe, Asia, and Africa, and the isles of the sea; but the trouble is, they would be spoiled before they get here. Now, then, let some big official explain to us the justice of carrying packages cheaper from the uttermost parts of the earth than they do just now from any part of the United States—yes, cheaper than we can get a package from the next postoffice, only two miles away.

very glad indeed to receive criticisms in regard to our methods of doing business, especially when they come with such good nature as the following protest.

Gentlemen:—A few weeks ago I wrote you about buckwheat seed, asking you some questions. You replied with a circular printed some 22 years ago. Instead of a brief, scientific, modern treatise, gotten up in snappy, interesting, concise style, I am treated to a mossback of a circular, that, even in the year of our Lord 1889, was none too creditable a presentation. To-day it is positively funny. Now, even so ancient and honorable and substantial a concern as yours might with profit get within 22 years of this day and age. Times change and the world moves, and there has surely been an increase in knowledge, even with regard to buckwheat. No doubt those farmer-authors did their best. They drew from their storehouse of knowledge, and yielded up their wisdom even for such as I. But, alas! mayhap the mold is growing over the last resting-place of most of those contributors, and the grandsons and granddaughters are treading the old familiar paths that shall know those ancient ones no more. But out of the dead and buried past there arises, through the medium of the A. I. Root Co., the words of wisdom and counsel—aye, the testimony of truth indestructible regarding silverhull and Japanese. Believe me, this pamphlet is a gem.

Canton, O., June 8.

THE KEITH MFG. CO.

In answer to the above, permit me to say that every little while our clerks were telling us that we were out of buckwheat pamphlets, and finally I said, "Print a great lot of them," and, as a consequence, we have had enough to give away right and left, as our friend declares, for 22 years, although it does not seem to me hardly a dozen years. I have one of these old pamphlets now in my hand; and my verdict, after looking it over, is that it is still a very good and valuable pamphlet to be given away. I know there has been great progress made in growing corn, wheat, and perhaps oats also. Many new and valuable varieties have been brought out; but, so far as I know, no improvement worth mentioning has been made in growing buckwheat, for 22 years. May be I say this because I am not posted; but if this is true, I am sure that, among the 50,000 or more of those who read GLEANINGS, there are some who can keep us posted.

Now, friends, we want to get out a new buckwheat pamphlet, up to date; and we are willing to pay for information on the matter that is not already contained in our old pamphlet. We will send any of you one on application; and if any of our various experiment stations have made buckwheat a subject for experimentation and test we shall be glad to hear from them. By the way, why is it that our Department of Agriculture at Washington has never put out any sort of pamphlet or bulletin in regard to growing buckwheat? We will gladly pay for information along this line. That is, as I have said before, for information not contained in our little pamphlet. Of course, there have been many articles on buckwheat-growing in our journal during the past 22 years; but I can recall now only a few points brought out that are strictly new. Buckwheat is much inclined to sport, and specimens have been sent us with colored flowers that made them pretty enough for a flower-garden; but nothing has been done in the way of getting an improved grain of

larger size since the Japanese, brought out by Peter Henderson something like thirty years ago.

Since the above was in type I have written to the Department of Agriculture, at Washington, and they inform me that no bulletin has ever been published in regard to buckwheat. I believe a leaflet was published by Cornell University some years ago; but they inform me that they are unable to furnish me at present even a single copy.

THE AEROPLANE, AND HOW MILLIONAIRES ARE MAKING A PLAYTHING OF IT NOW.

Of course every reader of this journal knows W. Atlee Burpee, the seedsman who has given the world good honest seeds for so many years. Well, it seems he has become a millionaire, and I am glad to hear of his prosperity, for I think he has worked hard for it. Well, Bro. Burpee has just started out on an ocean voyage. After he had got down to the outlet of New York harbor, as a joke on his friend John Wanamaker (who is also a millionaire, as you may know) he sent a message by wireless, ordering some stock—a toothbrush, stationery, etc., of course meaning it for a joke. But Wanamaker, in order to carry out the joke, telephoned an aviator, then making flights near Philadelphia, asking him how much he would take to deliver a package on board the steamer Olympic, then just starting from the piers in New York. The terms were soon concluded. A clerk rushed into the store, got the stock required, and an automobile whirled him to the biplane. The package was received, the flying-machine started, and soon found the ship wanted, then over twenty miles from the city. Skimming down within 200 feet of the vessel he dropped the package on deck among a crowd of people. It happened to strike a boy and knock him down; but, notwithstanding, the passengers cheered, and waved their handkerchiefs; and before he was out of sight the said boy got up and waved his handkerchief also. May God be praised for the possibilities that are coming to pass in the way of making these wonderful agencies do the bidding of the creatures he has created in his own image.

HONEY VERSUS CANE SUGAR.

On page 448 you advise the eating of fruit without sugar. That is right; but do you know you can sweeten it all you like with good extracted honey, and no bad effects follow? Cook the fruit; set it off the stove; then stir in honey to suit your taste, and see what a benefit it is. Children will eat it sweetened, but not without. Try it.

Arden, Neb., July 28.

W. H. MILLS.

Friend M., I entirely agree with you that honey is very much more wholesome than sugar, and doubtless many people can eat honey in the way you indicate, where sugar would make trouble. I have found it better, however, to eat honey rather sparingly, and not any at all for the closing meal of the day, with my apples or other fruit.